

## Fiber Optic Seal Produces Unique "John Hancock"

On-the-spot checks to verify the integrity of nuclear material under storage are now possible, thanks to the development of fiber optic seals by researchers at Sandia and the Atlantic Research Corp. (Alexandria, Va.).

The seals have unique optical signatures — dot patterns formed when light shines through fiber optic cables. Any attempt to open one of the seals, or alter the cables, changes the seal signature. Seal integrity can be checked on site — a definite time saver.

Inspectors from the Vienna, Austria-based International Atomic Energy Agency (IAEA) currently are evaluating the seals. One of IAEA's major responsibilities is to verify that nuclear material being used for peaceful applications has not been diverted to weapons use.

The seals were designed for use on items such as nuclear material containers and unattended surveillance equipment, e.g., TV cameras. They could be used in various

**In safeguards/security activities, we have to be realistic. So we start out with the idea that no security device can ever be called "perfect." There's always someone out there who's probably as ingenious as the inventor; that person may someday figure out how to compromise the system. So what we aim for in this work is to spend money wisely to achieve the highest possible confidence against expected threats.**

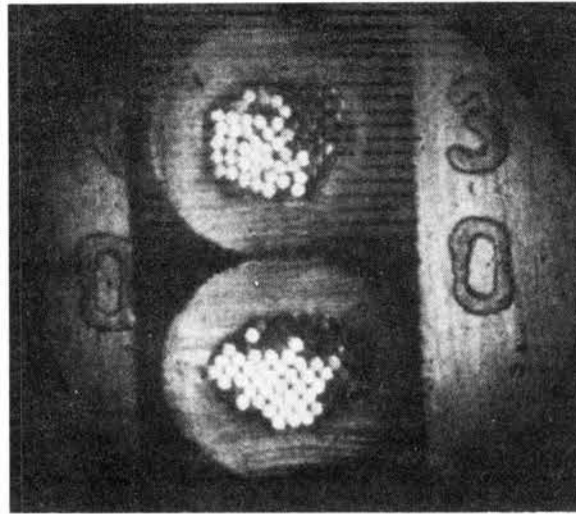
— Ivan Waddoups (5245)

stages of the nuclear fuel cycle, including fuel fabrication, power production, and fuel enrichment.

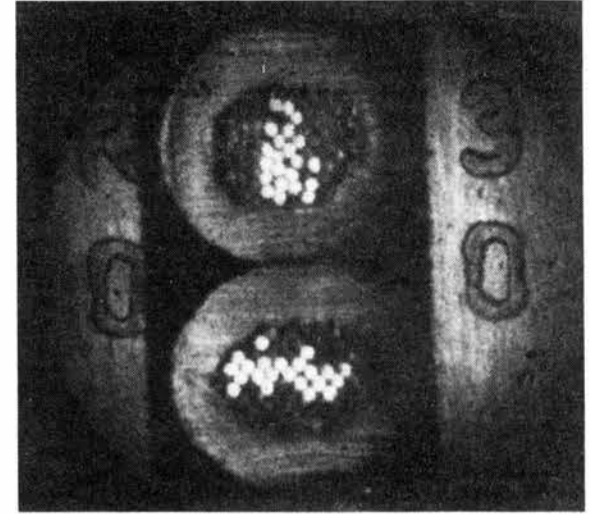
How do they work? Picture a gym locker padlock. The U-shaped arm that passes through the locker door hasp corresponds to the seal's fiber optic light guide, a tiny plastic cable that contains 64 randomly twisted optical fibers (see related story). Both ends of the cable are fed into openings on the device that will be secured and then threaded through a hole in a 2" x 1" x 1/2" plastic housing — the "padlock," in this case.

Two specially designed horseshoe-shaped, serrated blades — key features of the device — are inserted through slits in the housing's body to shackle the cable ends in place. During the process, the blades, whose teeth are angled, randomly sever between 40 and 60 percent of the cable's optical fibers, making them unable to transmit light. The cable ends then are trimmed flush with the face of the seal body.

Next, a recorder/verifier unit is used to shine light directly into both ends of the cable, producing a pattern of transmitted lighted dots at each end — a unique signature created by the uncut (light-transmitting) and severed optical fibers. A built-in camera automatically photographs this original "John Hancock," to be used



INITIAL PATTERN



ALTERED PATTERN

during subsequent inspections.

Attempts to withdraw the blades from the seal result in the cutting of additional fibers, thus changing the signature and providing evidence of tampering.

Inspectors check the seal with the recorder/verifier, which takes a second Polaroid photo of the light dot patterns. These patterns are then compared to the seal's original signature (see photograph).

The fiber optic seals would replace many of the wire loop/metal seals IAEA now uses. For verification purposes, these metal seals are removed from the site and taken to agency headquarters for inspection — "a very time-consuming process," says Dennis Mangan, supervisor of International Safeguards Division 5217.

Atlantic Research Corp. (ARC) performed the original seal and verifier design

and development in the early 1980s under contract to Sandia. A preliminary evaluation by IAEA of the ARC-designed device confirmed that the idea was viable, and the Agency asked Sandia to come up with some additional refinements on the seal.

The program began in 1979, when IAEA's Deputy Director for Safeguards requested the development of an *in situ* verifiable seal from DOE's Office of Safeguards and Security. OSS turned over the program to Sandia's International Safeguards Division in the 5200 Directorate. Since then, many Sandians have played key roles in design and development of the seal.

"Back in 1979, when Sandia was assigned responsibility for this program, we formed a technology selection committee

(Continued on Page Three)

 **LAB NEWS**

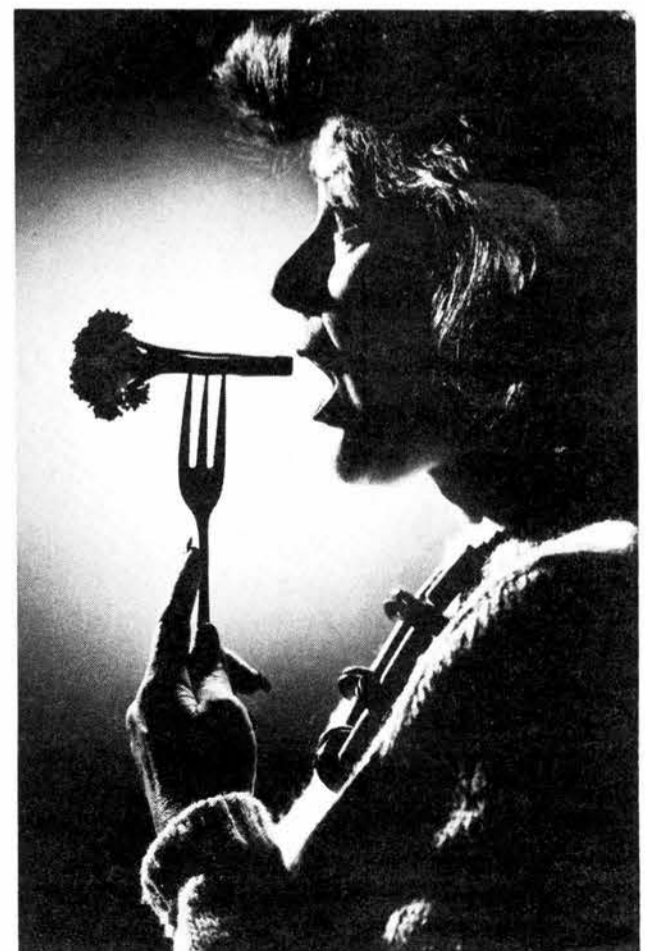
VOL. 38 NO. 4      SANDIA NATIONAL LABORATORIES      FEBRUARY 28, 1986

**It's Sandia Livermore's Birthday — Celebrate on Pages Seven Through Ten**

**Patronize the TLC Bar See Page Eleven**

'Now learn what and how great benefits a temperate diet will bring along with it. In the first place you will enjoy good health.'

—Horace (65-8 B.C.)





# Antojitos

**A Candid Pronouncement** There are several ways to get your picture into the LAB NEWS. You can get promoted to supervision, you can honcho a successful technical program, you can be recognized for your unusual vacation, or hobby, or community achievement. But all of those take some effort—or luck. So we have a couple of other ways for you to accomplish the same end. One is to die. For those of you who find that approach a tad extreme, practice longevity. That is, stick around Sandia for 10 or more years. We'll invite you to come by for a face photo (a mugshot, in the trade) on your 10th anniversary and every five years thereafter. And we'll publish that photo on our Milepost page, and everybody will live happily ever after.

Unfortunately, in the real world, it's not quite that simple. Even a casual glance at a Milepost page discloses that some folks get bigger pictures than others. (Ah, yes, even at Sandia, this bastion of defenders of America's freedoms, not everyone is treated equally.) It's not that we're anti-democratic; we're journalistic realists: pages of identically sized mugshots make a newspaper look like a high school yearbook. So we throw a few big candid photos into the Mileposts mix to avoid reader ennui.

Back in Sandia's medieval period—1971, to be exact—LAB NEWS went for nearly a year without running any service award photos. The reaction was strong, and negative—you would have thought that we had abolished yellow tape. So we reinstated the feature, adding candid photos to break up vast rows of mugshots.

A bit more history: 11, 12, 13 years ago, Sandia wasn't hiring. But ten years ago, the employment gangplank was lowered again, and lots of new people came aboard. Those folks are now hitting the Milepost pages.

So what's the point? The point is that we have room for only a few candid shots per issue, and our policy is to favor those employees with 25 or 30 or 35 years of service, not the new kids on the block. Yes, it's a pain to traipse over here on a Thursday morning to get a mugshot taken, and it's nice to have a candid shot, suitable for framing, on the Milepost page. But just be patient, youngsters—in just another 20 or 25 years, you'll get your chance.

\* \* \*

**Speaking of Anniversaries** Congratulations, Sandia Livermore, on your 30th! You Livermuddlians (by analogy with Liverpool: Liverpuddlians) have proved that a branch (as the young SNLL was first known) can become a most healthy, productive limb of the Sandia tree.

\* \* \*

**And Speaking of Trees** Given its California pacesetter location, it's not surprising that SNLL sometimes rebels at following Sandia custom. But sometimes it goes Too Far. With its recent renovations, its Mahogany Row is now oak—with mauve accents! Is nothing sacred?

●BH

\* \* \*

Finchè la pianta è tenera, bisogna drizzarla. (Italian: Bend the tree while it is young—"As the twig is bent, the tree's inclined.")

## Of Fun and Physics



... "At Great Neck [Long Island] South High School, if seniors are throwing softballs at the flagpole (kinematic equation measurement) or spinning in circles as fast as they can (conservation

of angular momentum), Richard Powell is probably behind it ... It is all part of Powell's plan to spread physics ... One rainy April day, his car had a flat tire. As several students rushed around changing it, Powell delivered a speech on torque." Michael Winerip, *New York Times*



## LAB NEWS

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## Top Honor for Physicists

### Retired VP Takes Pake Prize



John Galt, who was VP of research and of component development at Sandia before his retirement last fall, will receive the 1986 George E. Pake Prize at the March meeting of the American Physical Society in Las Vegas, Nev.

The Pake award recognizes outstanding work by physicists who combine original research accomplishment with leadership in the management of research or development in industry. It consists of \$5000, an allowance for travel to the Las Vegas meeting, and a citation.

John, now a principal scientist with the Aerospace Corp., El Segundo, Calif., was cited "for his application of cyclotron resonance techniques to studies of Fermi surfaces of metals, for domain wall motion in ferrites, and for his imaginative management of science [that] has led to new solid state technologies including light-emitting diodes, semiconductor lasers, molecular beam epitaxy, and superconducting electronics."

Much of the research mentioned in the citation was performed at Bell Laboratories, where John worked from 1948 to 1974, when he joined Sandia as Director of Solid State Sciences Research. He was named VP-Research in 1978, and became VP-Component Development in 1984.

He is a fellow of the American Physical Society and the Institute of Electrical and Electronics Engineers. He has served as a member of the Air Force Studies Board of the National Academy of Sciences, as a member of the National Research Council, and as a member of the Air Force Scientific Advisory Board. He was the winner of the IEEE Fredrick Philips field award in 1984.

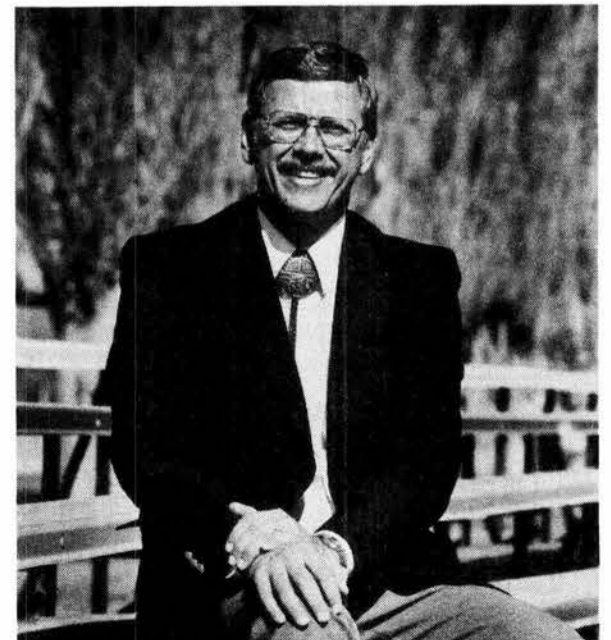
## Supervisory Appointment

PALMER NELSON, JR., to supervisor of NTS Field Operations Division 7124, effective Feb. 1.

Palmer joined Sandia as a participant in the TDP (Technical Development Program) in June 1962. He worked in the Tool-Made Samples (TMS) Division, a part of the quality assurance organization, until 1964, when he joined the NTS Field Instrumentation Department. He has been with the field test organization in Nevada ever since, except for one year (1979-80) when he was involved with safeguards activities at SNLA. Since 1980 he has been test director at TTR.

He has a BS in EE from the University of North Dakota and completed the TDP program at UNM in the same field.

Palmer is an avid gardener and golfer. He and his wife Jan live in Las Vegas. They have two grown children.



PALMER NELSON (7124)



# Fiber Optic Seals: Unique Signatures

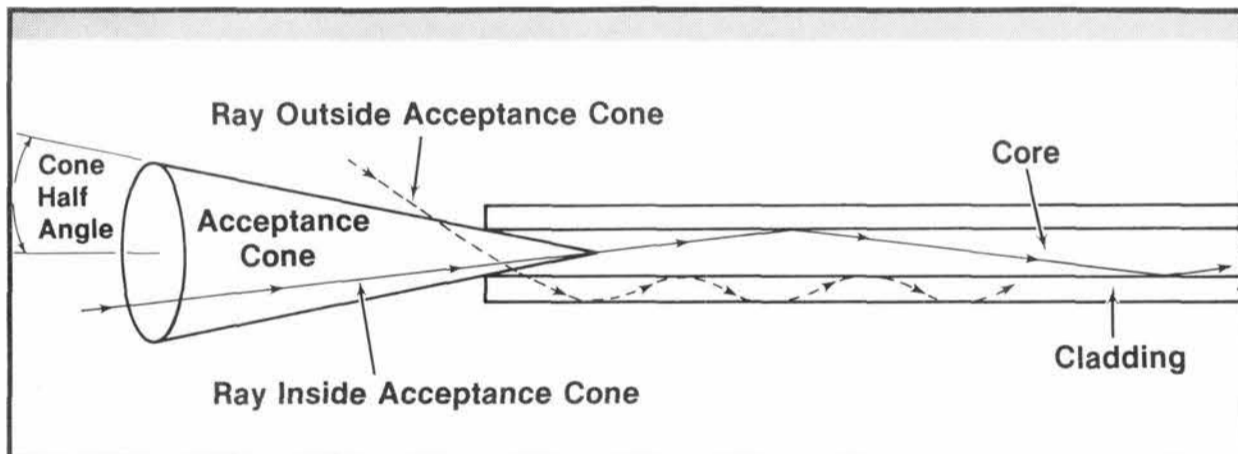
whose assignment was to determine the best approach for seal design," says Ivan Waddoups (5245, but then supervisor of the International Safeguards Division). "Jim Todd [now 6257] headed the committee, which included Sandians, a couple of representatives from private industry, and one each from Brookhaven National Laboratory and DOE. Once the committee decided on a fiber optics approach, we put the project out on quote; ARC was chosen because it made a good proposal with good technological merit.

"At that point, Gordon Harvey [ret.] served as project leader, working with ARC on the original design and development. When IAEA asked us to refine the ARC version, Bob Fellerhoff [now 1653] took over as project leader. Bob's ideas on seal design are incorporated in the final version that IAEA is now evaluating. Lew Suber [5252] also contributed to mechanical design. Cecil Sonnier [5217] is our chief liaison with IAEA, so he's very much involved with the evaluation process. A lot of people have worked on 'Cobra' over the years."

Cobra? "That's what we called the program in the early days," says Ivan. "An early seal version had two sections. Somebody said it looked like a cobra because it appeared to have an open mouth and fangs. But it doesn't look much like a snake now."



FIBER OPTIC SEAL (upper left) is checked for tampering by attaching it to the verifier head (pistol-shaped device containing light source and optics), which is connected to the recorder/verifier. The recorder/verifier, mounted in a case, contains film, optics, camera, and controls. The verifier head, triggered automatically by insertion of the seal, shines light onto the ends of the seal's cable, and a Polaroid photo of the light dot patterns is produced. The patterns are then compared to the seal's original signature.



OPTICAL FIBER reflection properties. Rays outside acceptance cone are lost in the cladding by absorption. Rays inside acceptance cone reflect from core/cladding interface and are guided by the fiber.

## Optical Fibers — How They Work

Optical fibers, used in the seal designed by Sandia and Atlantic Research, are small, transparent filaments that guide optical energy in the form of visible light or infrared radiation. Fibers are typically glass or plastic. "We chose plastic for the seal," says Ivan Waddoups (5245), "because plastic is tougher physically. Glass has better transmission qualities, but that wasn't the chief concern here."

Optical fibers have an inner transparent core and an outer transparent layer, called the cladding. Light is guided in the core by reflections at the core/cladding interface. The reflections occur because of a difference in the refractive index between the higher index core and lower index clad-

ding. (The refractive index of a material is a number that relates the velocity of light in one medium, e.g., air, to its velocity in another, e.g., the fiber's core plastic or glass — as it passes from the first to the second.)

The refractive index values determine the angle from the axis at which rays can propagate. At too steep an angle, rays enter the cladding and are lost by absorption; at a lesser angle, rays reflect from the interface and are guided by the fiber. Thus a fiber, because of its cylindrical shape, has some acceptance cone centered around its axis. This cone or its half angle is called the numerical aperture. The number of propagating modes in a fiber depends, therefore, on fiber diameter and the numerical aperture.

## Events Calendar

- Feb. 28-March 2 — "The Marriage of Figaro," performed in Italian by the UNM student opera department with the UNM Symphony Orchestra; 8 p.m. Fri.-Sat., 4 p.m. Sun.; Popejoy Hall, 277-3121.
- Feb. 28-March 8 — "Dance on the Loose" (flamenco, ballet, and modern dance); 8 p.m. Feb. 28, March 2, 6, 7, 8; 2 p.m. matinee March 1; Rodey Theatre, 277-4402.
- Feb. 28-March 9 — "My Sister in This House," 8 p.m. Fri.-Sat., 6 p.m. Sun., Vortex Theatre (2004½ Central SE), 247-8600.
- Feb. 28-March 23 — "Don Perlimplin" & "The Santero's Dream Woman," (two one-act plays), La Compania de Teatro de Albuquerque; 8 p.m. Fri.-Sat., 3 p.m. Sun.; Nuestro Teatro (3211 Central NE), 256-7164.
- March 1 — Showfest 86 Honors Concert, featuring winning junior and senior high school choirs of the Showfest 86 competition; 7:30 p.m., Keller Hall.
- March 2 — "The American Visionaries," New Mexico Symphony Orchestra Sinfonietta concert; Neal Stulberg, conductor; 3 p.m., First United Methodist Church (4th and Lead), 842-8565.
- March 2 — Reception for Etha Gray, author of *Future Concepts*, 3 p.m., South Broadway Cultural Center, 848-1320.
- March 2 — "Musica Femina," (flute/guitar duo); music by women composers, 1707-present; tickets at door or Full Circle Books (2205 Silver SE); 7 p.m., Highland Performing Arts Center.
- March 2 — Showtime at the KiMo, On Stage Series: The Brass Band (spoofs of classical music and musicians), 8 p.m., KiMo.
- March 3 — The Seraphin Trio, all-Beethoven concert; Leonard Felberg, violin; Joanna De Keyser, cello; George Robert, piano; 8:15 p.m., Keller Hall.
- March 4 — Audubon Society Nature & Wildlife Film Series: "Wildlife Annals," narrated by Allen King; 7:30 p.m., Popejoy Hall.
- March 4 — Keller Hall Guest Artist Series: David Ross, clarinet; Neal Stannard, piano; features music of Brahms, Handel, Bochs, Miller; 8:15 p.m., Keller Hall.
- March 5 — Showtime at the KiMo, Dancin' Series: Battery Dance Company, modern dance group from NYC; 8 p.m., KiMo.
- March 7-8 — New Mexico Symphony Orchestra concert; Neal Stulberg, conductor; Jeffrey Kahane, piano; music of Revueltas, Hindemith, Beethoven; 8:15 p.m., Popejoy Hall, 842-8565.
- March 9 — Movietime at the KiMo, Boy Meets Girl Series: "Shoot the Piano Player," French (1969), English subtitles; 7 p.m., KiMo.
- March 12-23 — "Happy End," New Mexico Repertory Theatre; 8 p.m. Tues.-Sat., 2 p.m. matinees Sat.-Sun.; KiMo, 243-4500.
- March 16 — Book signing party, *Determination* author Jesse Castaneda, *Los Reyes* authors Roberto and Debbie Martinez, 1 p.m., South Broadway Cultural Center, 848-1320.





CURRENT MEMBERS of the Women's Program Committee are (seated) Margaret Chu (6431), Denise Krupka (133), and Linda Branstetter (1524); (standing) Pam Harris (5255), Margaret Harvey (3510), and Sylvia Tsao (2147); not shown, Rena Haynes (7524). Pam, Sylvia, Denise, and Rena are new members this year. The Committee participates in outreach activities (such as job fairs, Women Leaders' Day, and career days) to promote awareness of job opportunities in science and engineering; serves as a liaison between female employees and Sandia in identifying women's issues; and assists Personnel in identifying qualified women for Sandia employment. The group is also currently planning Sandia's second Career Conference for Women, which is set for next fall.



Here are some current volunteer opportunities for employees, retirees, and family members. If you would like more information, call Karen Shane (4-3268).

**HEALTH FAIR NEW MEXICO's** third annual program of education and screenings will attract 15,000 participants to local sites (schools, shopping centers, hospitals, etc.) on April 10-20. Medical volunteers are needed for training, supervising, and counseling. Non-medical volunteers are needed for clerical support, registration, and screenings.

**SOUTHEASTERN NEW MEXICO SCIENCE AND ENGINEERING FAIR** in Roswell will be Saturday, March 22, from 10 a.m. to 2 p.m. A269 time may be charged for Friday travel to the 27th annual gathering of this well-organized event.

**COURT APPOINTED SPECIAL ADVOCATES (CASAs)** are needed to serve as monitors in child abuse cases in Children's

Court. Each CASA volunteer makes independent recommendations to the court regarding the child's best interests and speaks out to ensure that treatment goals are being met.

**SIXTY PLUS**, a new program based at St. Joseph Hospital, is seeking volunteers to help seniors with Medicare and Medicaid questions and forms. Seniors do not have to be patients of St. Joseph in order to be assisted by Sixty Plus.

**SENIOR CITIZEN OLYMPICS** provide a variety of competitive events (e.g., billiards, dancing, horseshoes, table tennis, basketball free throw, track, field, and swimming) for seniors. Volunteers are needed to help at events (including the state competition in Roswell) that are held on weekdays from now through May.

### Sympathy

To Ron Stone (7471) on the death of his mother in Albuquerque, Feb. 2.

To Dave Staley (7471) on the death of his grandfather in Albuquerque, Feb. 2.

To Joe Flanagan (3153) on the death of his wife in Albuquerque, Feb. 6.

To Richard Taplin (5145) on the death of his father in Albuquerque, Feb. 10.

To Margaret Sandoval (5322) on the death of her brother in Albuquerque, Feb. 19.

## feed back

*Q. If Sandia did not look like a combination reclamation dump, parking lot, and construction site (perhaps with a touch of war zone thrown in), then the employees might take a bit more pride in their environment and try to maintain its attractiveness.*

*A. First of all, it's not official policy to have ugly tech areas. We do have a lot of construction going on to provide needed space and facilities and to restore old utilities. And, unfortunately, most construction sites don't contribute to an attractive environment and our needs for construction will continue for the next several years.*

*However, we are making some progress toward improving the appearance of our tech area. We have landscaped around the more recent new buildings — 821, 823, 891, and 960 in Area IV. We don't plan to plant any more grass because it takes too much maintenance manpower, but we will provide desert landscaping with trees, shrubs, and gravel. We will continue the landscaping on a modest schedule.*

R.W. Hunnicutt—7800

*Q. I don't approve of the method used to select employees to participate in Medical's Total Life Concept (TLC) program and propose that any employee who wishes to participate be allowed to sign up. By lottery, pick those who can be accommodated, and defer the rest until later years.*

*A. The TLC staff considered the pros and cons of volunteers versus a random selection process.*

*Previous experience has shown us that volunteers are generally at the highest levels of health and wellness already. The intent of the TLC program is to involve Sandians at all levels of health in the program. By choosing the random selection process, we get a cross section of Sandians — some who are already practicing healthy lifestyles, some who are not.*

*We think some of our not-so-healthy Sandians, when invited to participate in a program that has great potential benefit to them, will get involved and begin making lifestyle changes they might not make otherwise.*

*This is a new program, and we are not sure what the response rate will be. If the people invited at random do not fill the available slots, we will fill the available slots with volunteers. If you would like to be on the volunteer list, send you name, organization, and E-number to Susan Harris, 3330.*

P.B. Mossman, M.D.—3300

*Q. During bad weather, a patch of ice accumulates in the shade near our building entrance. It's definitely a safety hazard. Safety referred me to Telecon. I did impress upon them the urgency for action. But it wasn't until the next day, after calling Telecon twice more, that a crew came by and removed the hazard.*

*I think Safety should take direct control of such situations and follow through once the hazard has been reported; it should not defer such calls to Telecon. There is no question that personnel safety should take*

### Little Things Mean a Lot



"The greatest toll from stress may come not from a divorce, the loss of a job, and other major traumatic changes or misfortunes, but from the minor yet frequent annoyances we experience daily — getting stuck in traffic, gaining a few pounds, having an argument at work, even breaking a shoelace. Besides the psychological effect of this stress, there is the physical impact: relatively unimportant hassles often have a greater effect on health — increasing risk of high blood pressure, asthma attacks, and possibly even chest pains — than do the larger-scale traumas in life. Hassles also lower energy level significantly. Such were the findings of a study conducted by Richard Lazarus and colleagues at U. California, Berkeley."

UC Berkeley Wellness Letter



## My Favorite Old Photo



BACK IN THE LATE 50s some of us in the Photo Lab decided we should all buy identical shirts so we'd look like a team (or a dance band, or something). So we did, causing our boss, Wally Boyes (ret.), to suspect we were up to some mischief. But we weren't. The three in the back row are Louie Erne (ret.), Dick Hodges (ret.), and Vince Newman. In the front are Oscar Goodwin (3155), Jim Poindexter, Roy Dunlap and Steve Farrelly adjusting the camera, Jim Pennington (3155), Bill Laskar (ret.), Bob Ezell (ret.). Dave Tafoya (ret.) is kneeling. And that's me reading the *Coronet* magazine behind the camera. Yes, I still have my shirt; I think it's coming back into style pretty soon now.

— Elliot Harris (3153)

priority over all other maintenance responsibilities.

A. The advice you received when you called Safety was proper. Supervisors and/or employees are expected to use Telecon directly to correct safety-related problems not requiring consultation by Safety. When so advised, Telecon will identify such problems for special safety attention when the request is routed to the responsible maintenance operation. When reasonably prompt action is not taken, Telecon requests a second call to expedite action. If, within a reasonable time, action still has not been taken, Safety should be called.

Safety does not take direct control and follow through on such situations for two reasons: 1) From a practical standpoint, Safety does not have sufficient staff to follow all such Telecon orders; 2) From a policy standpoint, SNL supervisors are delegated basic safety responsibility for their employees and their work areas. This responsibility includes initiating and following work requests for correction of unsafe conditions.

In summary, Safety, Environmental Health and Fire Protection staffs provide advice and counsel to supervisors, and

assist in determining appropriate solutions to hazards in these areas. It is not intended that these staffs assume the supervisor's responsibility for resolving such matters. The ES&H staffs are available to help where inappropriate delays are encountered.

J.D. Martin - 3400

Q. (Livermore) Could we get some better places to eat lunch? The patio area has three tables that look nice but are so filthy no one would dare to sit there. The benches are OK, but sometimes it is difficult to eat while balancing your lunch in your lap. And these are all good weather places. What are we to do in the cold or the rain? I realize LLL has a cafeteria across the street. But a 30-minute lunch period makes it a little hectic to get there, eat, and get back on time. Could we possibly get a room with tables and chairs where we can go and eat our lunch, see other people, and relax for our 30 minutes?

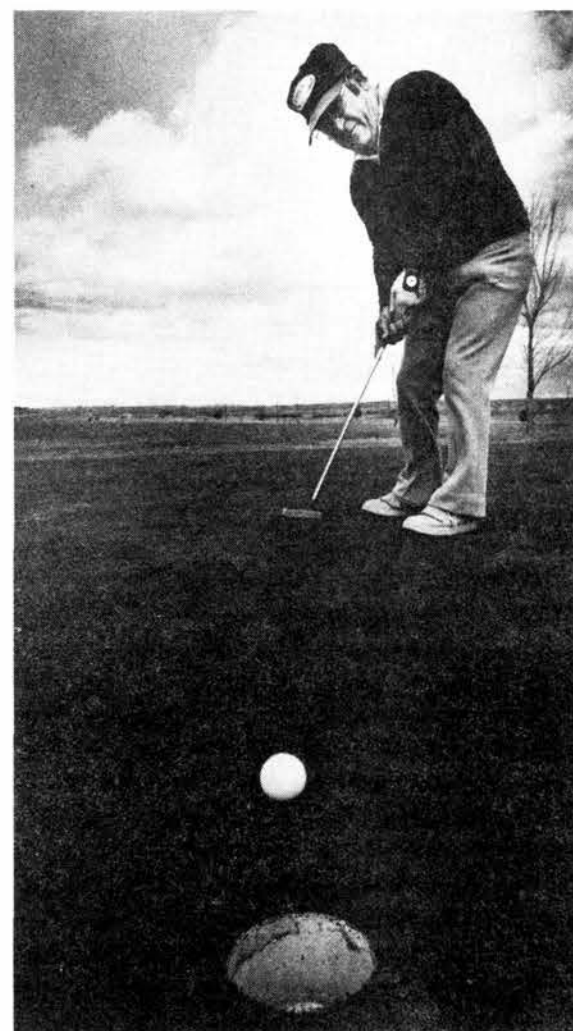
A. Unfortunately, there is no immediate solution to your problem. As you are undoubtedly aware, space is at a premium. First consideration must be given to needs directly related to Sandia's mission. However, management is aware of the need for the kind of space you describe and is considering possible solutions. When the new weapons laboratory is completed, other areas will be vacated. It is possible that one of those areas will be feasible for use as an eating area/multipurpose room.

A.G. Schuknecht—8020

Q. What is the possibility of another Family Day in the next two years?


A. A Family Day will be held this fall, but the exact date has not yet been selected.

L.H. Pitts - 3100



MATT BUSTOS (3423) is aiming for an eagle-in-the-hole at Tijeras Arroyo Golf Course. The 14-year veteran golfer had scored his first hole-in-one on Feb. 16 on the second — par 3, 138-yard — hole of the executive course at Ladera, using a 7 iron. "I'll get another one in the next 15," Matt said. Was that plays or rounds? "Maybe years," Matt said, after a long pause.

### How to Have Fun in Science

 "I've got huge gaps in my elementary chemistry," says Robert Langridge [a pioneer in DNA architecture and in computer graphics, UC San Francisco]. "It's always embarrassing when a colleague sits down and starts pushing electrons around on paper and I say 'What the hell is this?' Well, I take their word for it. They take mine. The best way to have fun in science is to do something you're not trained for."

Science 85, July 1985



# Welcome

## Albuquerque

- Arnold Augustoni (1124)
- Roger Adams (2634)
- Victor Chavez (3422)
- Carol Ferguson (154)

## Arizona

- Daniel Kral (321)

## Indiana

- Eric Yoder (2311)

## Maryland

- Mark Dickinson (5161)

## Nebraska

- Terry Bacon (341)

## New Jersey

- Roberto Dunn (1824)

## New Mexico

- Loretta Maestas (1822)
- Frank Martin (2634)
- Lewis Dayton (2634)

## Oklahoma

- Angela Denham (2533)

## Utah

- Nicholas Testi (2646)



RIDING HORSE, complete with Sandia badge, mysteriously appeared outside the office of VP Dick Claassen (8000) during one of his recent tri-level meetings. Dick, who had earlier made an offhand comment to Arlyn Blackwell (8200) about the disarray of bikes parked everywhere and the need to improve transportation around the site, discovered the horse tied to a hitching post and hopped aboard. Here ASI inspector Gil Sandoval checks for valid badges. However, because bikes don't consume fuel (like hay) or pollute the environment, it appears they will be retained as the main means of on-site transportation for a while yet.

# RETI R I N G

## Sympathy

To Gene Thomas (8262) on the death of his father in Oakland, Feb. 6.

To Bob Green (8362) on the death of his father in Alameda, Feb. 9.

To Jim Pegrossi (8184) on the death of his father in Pleasanton, Feb. 1.



Richard Jones (2346)  
31 yrs.



Philip Nicovich (2858)  
36 yrs.



Florenio Baldonado (3423)  
34 yrs.

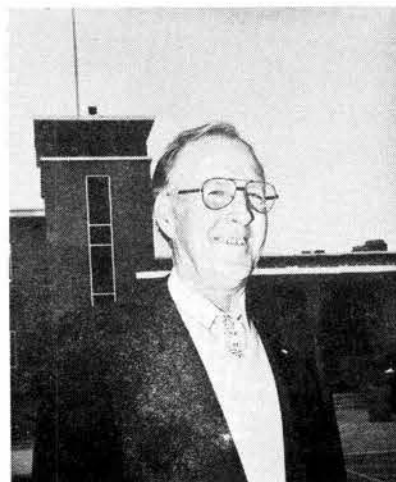


Eleanor Owens (3700)  
22 yrs.



## Retiring

JIM MARTIN (8262; above) and KEN GELS (8314)



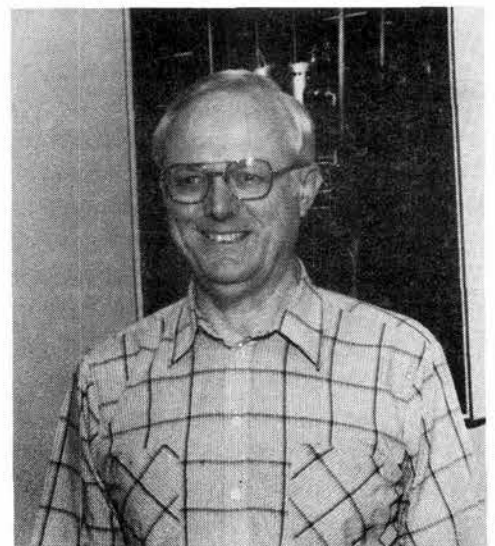
Dale Pipher (6423)  
35 yrs.



Doreen Westfall (3733)  
32 yrs.



Willie Romero (7482)  
16 yrs.







**FAMILY DAY 86**

VOL. 38, NO. 4

LIVERMORE LABORATORIES

FEBRUARY 28, 1986

1956-1986

# LIVERMORE NEWS



## 30th Anniversary Issue

**Happy 30th, SNLL!**

### Family Day Marks 3 Decades

Sandia Livermore's 30 years of existence next month (see History story) will be observed with a meeting, a tour, and an open house.

The open house on March 8 will emphasize the theme of "community spirit and involvement" among its employees. Earlier the same week Sandia will host a meeting of the civic leaders' Valley Study Group and conduct a tour for business, education, and government leaders.

Family Day chairperson Holly Stryker (8264) notes that "Sandians have always been good neighbors to the community, and the committee wants to point out the variety of volunteer work contributed over the years by our nearly 1100 people here." So, included among the exhibits planned for March 8 is a large collection of photos in M021 representing Sandia Livermore and its employees' contributions to their communities.

During the 9-to-5 open house Sandians will escort family members and invited guests around the site to more than 100 displays, demonstrations, and audio/video presentations. A new guidebook will help people find their areas of interest, and a Family Day logo (shown at top of page) has been designed for the occasion. The committee expects as many as 5000 people on site that day.

In addition to Holly, the steering committee is composed of John Barnhouse (8261), Pat Beasley (8263), Joan Bersie (8200), Jim Boehmke (8362), Les Brown (8341), Chuck Bryan (8257), Cindy English (8201), Jim Ringland (8478), Stuart Wavell-Smith (8265), Bonnie Spencer (8262), and Darlene West (8161). Nineteen other department representatives are coordinating the activities and displays from all areas of the labs.



REMEMBER THE '56 T-Bird, Elvis, Nat King Cole, and Ike? This young son of an employee attending the 25th anniversary Family Day in 1981 had his eye on that jazzy-looking Thunderbird (no relation to the company logo) as he visited the nostalgia display outside Bldg. 912. He wasn't even born when the car was built or when rock 'n roll was in its heyday. Now there are Sandia employees who consider the 50s ancient history...

#### 30 Years in Livermore

### A Tinge of History

Sandia Livermore officially began on March 8, 1956, after 15 people had transferred from Albuquerque to work on engineering design and nuclear ordnance with (then) University of California Radiation Laboratory (UCRL). Their first home was in barracks north of East Avenue at UCRL, which later became Lawrence Radiation Laboratory (LRL), Lawrence Livermore Laboratory (LLL), and is now Lawrence Livermore National Laboratory (LLNL). In 1957, Bldg. 911 was completed on the Sandia site south of East Avenue, and some of the

transplanted Sandians moved to their permanent work site.

Sandia Livermore's first five years of existence saw its fastest growth, reaching 12 buildings and 950 employees. Now there are 62 buildings and 1077 employees. (If you want to verify the latter, see pullout poster on the next page.)

A collection of photos on Page 4 of this special section highlights some of the accomplishments and milestones at SNLL over the five years since the 25th anniversary.

### Quock Named Woman of Year



Karen Quock (8261) is the 1986 Woman of the Year, according to the Livermore Valley Charter Chapter of the American Business Women's Association. A 25-year Sandia employee, Karen joined the local ABWA group in

1979 and has held the offices of corresponding secretary, recording secretary, and president; she has also chaired several committees. She will be honored at the national ABWA convention in Kansas City next October.



FAMILY DAY COMMITTEE members (seated left to right): Bonnie Spencer (8262), Joan Bersie (8200), chairperson Holly Stryker (8264), Cindy English (8201), Pat Beasley (8263), and Stewart Wavell-Smith (8265); standing are Jim Boehmke (8362) and John Barnhouse (8261). Members not shown are Darlene West (8161), Chuck Bryan (8257), Les Brown (8341), and Jim Ringland (8478).



BOB PETERSON KENNETH BYRNE DAN HARTLEY PAUL LARI MAX SCHELL GEORGE THOMAS RAY NG LARRY BROWN PATRICK KEIFER GERI CARSON WALTER BAUER BARRY FORMISANO LARRY WEINGARTEN BARRY GREEN DAVID STEPHENSON GARY RICHTER HAROLD JOHNSON SANDRA BOWERS DANIEL DAWSON MARION MARTIN VAL ORI GARY KIRCHNER PAT SMITH DANIEL YEE MARY ANN REAY DAVID DANNENBERG KAREN SIEGFRIEDT LARRY BERTHOLF CAROLYN TOWNES TAZ BRAMLETTE JAMES CARRELL WALTER GHIO MARY SHOJI RUDY JOHNSON LEWIS ROACH VAL PESTANAS WAYNE SCHOCK MOREY REYNOLDS CHARLES STOCKLEY CARL FURNBERG AL MCDONALD KAREN QUOCK JANICE SEIBEL CARL PRETZEL PAULA NEIGHBORS PAUL BREWER LARRY CLARK LAWRENCE NAVARRO MARION MCCAIN DON DUBOSE BILL PEILA GERALD HENDERSON BETTY PIMENTEL RICHARD FINN DANNY MONIZ DEAN WILLIAMS JAY SPINGARN MICHAEL MCCLELLAN MARY OSHEA CAROL DEWOLF JAY JOST RICHARD STEEPER MARY JOHNSTON RENEE HAYNES DAN TICHENOR JIM WANG BEVERLY JEFFERSON GARY SIMPSON PAT FALCONE KATHIE CRIDER HARRIETT SKOOG DANIEL FOLK PAT OBRION THOMAS PRAST HAZEL WILLYARD CECILLE PHILLIPS DALE WALKER BARRY HESS JAMES COSTA GARY FISHER MARK PERRA RICHARD ANDERSON LEON SEIBEL GENE ANGVICK PAUL SIMMONS TIMOTHY MCCABE HARRY LAUDERBAUGH PAUL VANDYKE MARY RIVENBARK HESA YANO DEANA BUTLER SALLY ANTONCHUK LARRY BORELLO MARGE MEDERIOS MARTHA CAMPIOTTI JACK BISHOP GARY SHAMBER WAYNE CHRISMAN PAT GILDEA WARREN SEYMOUR JUDY WACKERLY CLAYTON MAVIS GENE WEST BARRY SCHOENEMAN LYNDA HADLEY GLORIA CHRISTENSEN JOHN GOLDSMITH ALICE ROGERS CHARLES BRYAN GINGER COMMON MATT CONNORS PETE WITZE PATRICK TAMAYO JANE ANN LAMPH DARRELL CHRISTENSEN DANIEL MORSE BARBARA COMBS KENNETH GELS SAM PRICE JEFF MOORE NANCY GRAHAM KATHY BENNA DAN HARDIN MARK HIGUERA LARRY RAHN BUD PELLETIER MICHAEL FERRARIO DEE ALLEN DENNIS NELSON JOHN FORDHAM NINA BERGAN BILL KENT JERRY CASHEN RONALD SAULS JAMES RINGLAND GEORGE FISK GERALD GIOVACCHINI DONALD MEEKER PATRICIA BEASLEY DAN DANIEL SANDY MOORE CINDY JENSEN-MIGUEL HARRY BURCHAM JAMES BRANDT PAMELA KANALEY JIM HACHMAN MEL LAGASCA TERRY BERSIE LARRY HOFFA BILL FORBES CARL WACKERLY DICK BALLARD MARY MANDIA KEVIN BRANN DANNY MITCHELL MARSHALL LAPP RALPH KELLEY SUZANNE FOLLETT JOHNNY ALLEN MICHAEL MALINOWSKI MICHAEL PENDLEY JIM HOGAN LEE RADOSEVICH CHARLES MCCAIN JEFFREY JOHNSON LORENA SCHNEIDER MARLYN DIAZ CLYDE TAYLOR BILL ORMOND CLYDE SEIBEL JEFFERY CHERRY MEL WEST MARK MICKELSEN ROGER BAROODY TIM MARINO WAYNE TOWNES RALPH COZINE JEFFREY TONG JAMES GRUVER ADANA DEAN JAY PETERSEN DONALD STONER KEN TSCHITTER BILLY SANDERS DARRYL BEERS JIM WORKMAN LINN DERICKSON ED HOLBROOK JAMES CARDINAL DONALD HERRON BEN BENEDETTI AL BASTION RION CAUSEY JIM LUCAS CECIL BONZO REBECCA PRUSSE GARRETT DRUMMOND JIM PERGROSSI CARL MELIUS PHILIP BROWN LAURIE FARREN RICHARD ULRECH NICK WITTMAYER CHARLES BROWN JAY GILSON JIM DUGGAR BERNABE BERNAL JIM VAN DE VREUGDE VERA REVELLI KENNETH HENCKEN CARL HOLMES MARV LOLL DAVID ROSS KEVIN MCCARTY JACK YOUNG KARL WALLY VAL COWAN SCOT MARBURGER WAYNE JACKS DARCY ROBERTS DAVID NEUSTEL SALLIE FADDA TOM DEVLIN JIM WRIGHT DORIS JOHNSON WILLIAM HOUF WILLIAM REPASKY MICHAEL BASKES DWAYNE MOHRMAN JOAN KERNS RON HAFNER BRIAN ODEN JUANITA MANSFIELD GLENDA ROSS VAL BLACK ELIZABETH FLATBUSH KELLY MCCUEN STEVE ROBINSON GRACE DELGADO JOAN MADSEN NORM COLCLEASURE STEVE CARPENTER ARTIE ORTEGA FRANK HALASZ FRAN RUPLEY BRITT-MARIE MANROW TONY SOUZA RICHARD DEMO STEPHENSON TUCKER STEVEN BUCK STEPHEN LEACH ART KELLUM GLADYS KIMBERLING DONALD SHEAFFER JIM DREMALAR CURTIS SPECHT JOANNE VOLPONI RITA HOAK BETTY MAYER CLIFFORD SELVAGE FOREST BLAIR LUTZ DAHLKE KYLE BERRY RUSSELL YEAROUT JUDY KNIGHT RICHARD CLAASSEN STEWART GRIFFITHS STEPHEN BRANDON RUSS WERTENBERG JOHN BECKER HOWARD JOHNSON THOMAS SPIGLANIN DUANE LINDNER DON LIND EVERITT DAVIS YANCEY LUTZ PAT LEARY MICHAEL DANIELS GAYLE ALLEN MARTHA PRITCHARD DARLA GRANZOW RUSSELL MILLER RIGO LEDEZMA GUY PRESCOTT TOMMIE BRYANT KAREN SHEAFFER BOB PILKEY DEBRA POST JIM LATHROP GEORGE MINCKS VICKI SCHOENEMAN SCOTT ANDERSON STEVE HALLECK DAVID TIMMER JOHN KORELLIS KENNETH STEWART ANNA ISHAM AL HARRISON DENNIS BEYER KENNETH DOLAN DICK ISLER JUDITH KNORR GRAHAM THOMAS ALLAN SCOTT DOUG MACMILLAN GORDON GIBBS ARNOLD SCHUKNECHT TRACEY LAMEE TONY MORRIS NORMAN BREAZEL GLENDA PADILLA TIMOTHY SA BELVA MAYFIELD STEVEN ORTH ROGER WATSON REGGIE MITCHELL JAN INZERILLA ROBERT STROUT ANN HOGAN SHERRY BOWEN JERRY HINE RON GORNIAC ANDY CARDIEL JOSE IGNACIO DIANE DIEMER JOHN KRAFCIK JIM BOEHMKE JOE AMBRULEVICH KENNETH BUCK KENNETH CONDREVA HOLLY ALLEN FRED JOHNSON RICHARD PALMER GREGORY EVANS CHRISTOPHER ANTELLAS DONN WRIGHT MICHAEL ALLEY BOB CATTOLICA TOOTIE MOORE TIM ROUDEBUSH NETA ARCHAMBAULT LUPE MARTINEZ BRENDA MCFARLAND JOHN IZZO BOB CROW JOHN TOOTLE JILL GREEN YON PERRAS RICHARD WHITE DAVID CHANDLER LINDA HELMICK LEE ANN HUBBS MICHAEL TOOTLE STEFAN FOLKENDT DONALD STARKEY ARNOLD RIVENES ROBERT PERRY DON HARDESTY NOEL BAGGETT FREDRICK HART ED CULL ROBERT ANDERSON KELLEE DANKIEWICZ ROD NISSEN BRIAN CHAMBERLAIN DICK HOUSER DOUGLAS HOSTETTER HOLLY STRYKER BILL RORKE JILL HRUBY JOHN SMUGERESKY GENE VOELKER ALVIN BAKER EDWARD ROSCH DICK JONES HENRY SCHOEPPE BERNICE MILLS HAL NORRIS J D PORTER BARBARA KERR CARLTON SCOTT CARY CHIN DANIEL DOUGHTY MARK MINTZ MARILYN HAWLEY PAT CLARK BARRY BOLDEN DURWOOD GREEN JYH-YUAN CHEN ROBERT HUMPHREY GERALD PRIEBAT CLARENCE JOHNSON MURRAY DAW LOU SELDER CLIFF SKOOG JACKIE CHEN CARMEN PARRISH GAYLE CAIN REX STEELE LEO MARA NEVILLE MOODY DARLENE LOLL MEL BROWN GALE HUDSON CAROLYN PURA CAROL VERITY DENNIS ARIIZUMI PAT DEVIVI WALT MAUPIN HAROLD HUNT ALBERT REICHMUTH VERN BYFIELD SHARRON NORRIS THEODORE JOHNSON VIC KRAUSE MARTY ABRAMS JAMES SHELEY DAVE DEAN GLENN KUBIAK JEFFREY MCQUOWN JIM BARHAM THEODORE SNEDDON JIM MARTIN GENE IVES ED MCKELVEY BARRY SCHRADER WILLIAM SHANE RICHARD CHIN KIRK BATTLESON DAVID BARRY AYDEN YOUNG BRAD CLARK CLIFF YOKOMIZO DON HOLVE JON KNIGHT EVONNE CASPERONIS DONNA OPDAHL AL JONES STEVE IKEBE CHARLES COMROE STEVE VOSEN JOE HARRIS DARLENE WEST DEBRA NIVER LARRY HUMPHERYS DOUGLAS GEHMLICH BETTY CARRELL CINDY ENGLISH PETER MATTERN LORI JOSEPH ROBERT BRANDT ULDARICO DELCASTILLO JOEL GROSKOPF BOB JOHNSON CLARENCE ROGERS LEN DIGHTON STEVEN BUNN BERT BROWN BARBARA FREEMAN BOB BASTASZ STEVE LOVE JOHN KEILMAN STEVE SCHWEGEL OTTO SCHREIBER ALAN KERSTEIN JIM ALVAREZ GREGORY HAWLEY ART VAN HOOK GRANT TAYLOR HILARY JONES DALE BOEHME KAREN LEE LANA WEST JULIETA FOSTER JOSEPH GRGAR JUDY MORICE MIKE STEPHENSON ALAN SKINROOD KENNETH NUNEZ HERMANN FOLKENDT JAMES MILLER JERRY SLUSSER ADRIAN BORJA JERRY HUNTING MARTIN HINCKLEY DONALD HALL BILL WALL JOEL LIPKIN VINCENT PRANTIL GERALD HARGISS EDELE NORMAN KEN MITCHELL MARTIE TAYLOR ROGER TILLEY DON BENTON JEFFREY PAGLEY ED DIEMER BOB ALLEN DICK SILVA PEG BON DURANT DAVID STIMMEL BUD BROCK PAUL HEPPNER DON PATRICIAN SHEILA AKINS JOHN CHAVARRIA BILL SWANSIGER ROBERT FRANSSON RICK STULEN BOB ALLEN SHERIDAN JOHNSTON PATSY BUXTON DAVID NAGEL ELDON PORTER BILLY PONTSLER SHANNON HOUK JACKIE GARRETT JUDY GOLTZ BILL WILSON JOHN BARNHOUSE CLIFFORD SCHAFFER ART HAYES TONNI NUNLEY CLEO EVANS PETER VAN BLARIGAN JOHN MENDENHALL CAROL FLORES ANDREW GARDEA TERRY LOWE ANDREW LUTZ MIKE BIRNBAUM TIMOTHY CODY KEN HENRY WALLY JOHNSON JACK PONS DAN ROSS BARBARA CARTER GARY FOSTER TED HEBEBRAND DON



WILSON HOWARD HIRANO GERALD WILLIAMS JOHN BENAPFL DIANE GOMES JOHN DANIEL BEVERLY HAIGHT WILLIAM FLOWER CHARI BELON STEVE BINKLEY RAY  
BALDONADO ROBERT GRAHAM BOB SCHMIEDER STEVE MARGOLIS YIH-RENN KAN FRANK BIELECKI IKE DAVIS BOB CARLING OLIVER LU ROBERT BRADSHAW JEANNE  
YU GENE THOMAS KEVIN CARBIENER HAL SHORT RAY LOPEZ CURT COFIELD MAVIS FLOWER DAN BOZMAN KHANH TRINH STEPHEN GUTHRIE JOHN DEC DONALD PUTZ  
BOB BEDFORD BOB GREEN BILL ROBINSON ROY LEE CORY OTTESEN JIM WOODARD LINDA ARMIJO DIANE BESTIDER DOROTHY HARRELL AL WIEMKEN JIM HOPWOOD  
CHRISTINE YANG PATTY CAROTHERS DOROTHY WIEMKEN TONI HALLETT SHIRLEY CARSON SHERLON FORTENBERRY KEITH COOKE CAROLE PRICE NANCY HUNT RANDY  
CHRISTMAN RALPH JAMES JOE BRAZIL EDWARD TALBOT CAROL KNAPP MARIE DREMALAS DALE IRVING DON KASBERG BOB SANDOVAL SHIRLEY ELLIOTT JAN  
COLLINS WHITEY SORENSEN GERRY STRANDIN DENNIS SPARGER LEN NAPOLITANO ROBERT LUCHT FRANK MAESTAS BILL HOOVER BOB GALLAGHER BILL WINTERS BILL  
WHITNEY PETE OLIVER SUE WEBER DON OSBOURN BILL BONIVERT OLLIE ROHRBACK GEORGE RAFAL ALICE JOHNSON FERD THOME DAVID CHIN MIM JOHN LEWIS  
CLAUSON SPIKE LEONARD DICK SHIMADA ROBERT MAY DEBORAH LINNELL CLARENCE KARFS WILLIAM BROWN REX EASTIN HAROLD BRINT MICHAEL HANSEN PAUL  
JOHNSON CHRISTIE OSHEA FAYE RASMUSSEN MOE ROBERT DAVID DENT NORMA CALDERON-ZABLOCKI JIM REITZ JOHN MENA BILL MCLEAN COOK STORY SAMUEL  
PAOLUCCI JOHN VITKO PATRICIA BRENNAN RICHARD BEHRENS JERRY MOORE RENE BIERBAUM BARBARA MOY KAREN ANDERSON RAY GOTT BOB DOUGHERTY JAN  
VAHLENSIECK AL SALMI MICHELE WELLS DEBORAH CESCOLINI LEONARD MORRIS KEN WILSON DAVID ABRAHAMS BLANCHE MATTER SAUNDRA LORMAND LARRY  
BRANDT JIM KERSEY LES BROWN RAYMOND CULY JAMES REGO JAY KELLER CHARLES PIGNOLET KENNETH MARX ADAM SANDOVAL HANK WITEK SHERYL JOHNSON  
DENNIS SIEBERS CARL SCHOENFELDER CAL FEEMSTER VERN BARR DANIEL BERNACIL GABE GUTIERREZ LARRY THORNE RANDALL GUMMUS RAYMOND RYCHNOVSKY  
SANDRA BROWN MARK JASKA LESTER DEIMLER GAIL BRYAN JIM SMITH PAUL CANEPA THOMAS FLETCHER HENRY HANSER SETH BRADLEY LOUIE TALLERICO JIM GIBSON  
JOHN HINTON JOHN HAMILTON BILL MASON NEIL LAPETINA JOHN MARTIN DONALD SWANSON JOHN FRIDDLE AL WEST JO ANN JACOBSON BOB TOCKEY RONALD  
AMARAL GORDON BENNETT DON VECA ROGER ROBERSON ELIZABETH COLEMAN ELIZABETH FUCHS KEN ST HILAIRE BOYD EDWARDS BRENT HAROLDSN ARMY  
ANDRADE JULIE URIBE RON ALLEN COREY KNAPP BILL ASHURST DON BENTHUSEN NORM WAGNER BILL EVEN BRUCE KISTLER RON STOLTZ DAVID RUDDLE GINA  
LAMONS WILL BOLTON PETER DEAN KEN URABE STEPHEN SMITH TOM MAYS NONA BAKER GREG THOMAS MICHAEL KANOUFF DON ADOLPHSON BRAD MEYER BRUCE  
AFFELDT DOUG HENSON TODD FELVER DORIS POUARD DWIGHT SORIA ARLINE HARRELL BONNIE SPENCER ED ENGLISH DONNA LEMAY JOAN BERSIE MICHAEL  
CHIESA WES ESTILL WILLIAM MOORE BERNIE DUNNE LOLLIE NUNEZ BRUCE WORDEN COLETTE CLARK THOMAS FELTER FRED GREULICH MORRIS MOTE TIMOTHY  
SAGE ROBERT MONSON DOUGLAS BAMMANN RICHARD ROY FERNANDO URIBE EMILY JOINER BILL GORDON DON WAGNER LOUISE CONVERSE JOHN MOLITOR LEE HORD  
JAMES SMITH PATRICIA BREILING DARREL BUETTNER JOHN FREIE PAUL NIELAN WILLIAM DELAMETER DICK COOK MICHAEL FIRNENO MARIA HUDSON DAVID  
ZANINI MARVIN KELLEY MITCH WILLIAMS JUDY HAFNER JUNE WINTER RUBY BELL BOB HARGREAVES FRANCIS CUNNINGHAM FRANK CUPPS JOHN WARMOUTH BOB  
LEBOW AL ELSEA BOB WARE CONNIE VISBECK JON MEEKS WIL JORGENSON CHERYL LAWRENCE KENNETH TRUE NORMAN TOLY MILES CLIFT JUDY FOSTER AL  
DUCHARME GRACIE MIRANDA BOB TIRNETTA STEPHEN FOILES JOE HANKINS JACK CASEY STEVE GRAY HOWARD ROYER STEVE GOODS GEORGE SCHILS EUGENE  
SPRINGER WEN-LING HSU JOHN ROGERS MEL CALLABRESI FRED PEREZ ANTON WEST ROBERT GARRETT ALBERT JAMES LAVONNE PICKENS JAMES BERRY ROGER  
FARROW CONRAD STAYNER DIANE SHIMADA KENNY FUNG ELMER SMITH BILL BYROADS LINDA KUCKENBAKER BETTY LAPAZE LINDA BARNCORD WILHELM  
WOLFER LEONARD HILES SCOTT FAAS FRANK TULLY BOB DIBBLE BRUCE KOOPMANN DOUGLAS HANSON MICHAEL KOSZYKOWSKI RICHARD JENNINGS ANNETTE  
NEWMAN MIKE GUSINOW FRED HANSEN JOE TREML TOM JEFFERSON JOHN DIDLAKE VON MADSEN RICH CAMPIOTTI GEORGE COSGROVE JOHN LIEBENBERG ALBERT  
LAU CHARLES RUDBERG EDWARD WALSH SPENCER KLAPP RICHARD GAY RON FUGAZZI ZELMA CREAGER SHARON WHITE KAREN WOODALL KEN HICKEN HELEN CHEN  
PAUL KLEVGARD MIKE ROGERS SANDY MONDOT SUSAN GANCAS JOHN SMITH CHUCK SAGE TOM GAFFORD STEVE HANEY LOUISE TAYLOR JIM ACKERMAN ROBERT  
ARNOT ROCKY BOUSCAL BOB AIKEN KRISTY SIBERT ROBERT DANKIEWICZ JOHN TOTTEN JOHN LEEPER JOSEPH DAMICO RICK BLUM BOB SCHULTZ WILLIAM  
PURCELL KEVIN SCHRODER BRUCE NEVIN DON CHARLESWORTH ROBERT SCHEFER BOB CZAPINSKI MIKE ROUDEBUSH RICH LARSON RODGER PAGE JOE GRANT GORDON  
MILLER JOHNNY ELLISON EMORY PADGETT STEWART WAVELL-SMITH JOHN DOLCE JOHN ROSENOW MICHAEL NEUMAN BEN ODEGARD DIANE ATWOOD CATHERINE  
MARINO GREG FOLTZ JOAN FUNKHOUSER BOB TUCKER ANNIE WEBB COSTANZO LAJEUNESSE VERA DASHNER RICHARD WHEELER CHARLES BISSON RANDAL SCHMITT  
DAVE HAVLIK SUZANNE THOMAS JOHN WIRDZEK MIKE STEWART ED WILLIAMS THOMAS RABER RALPH CLARK KENNETH HONTZ JACK MARTINELL CARLOS FORD KATHY  
MELLO ROBERT FACER LOU WITTKOPP BOB MILLER BILL REGO CHARLES RAY KAREN MEYER JANICE ALLEN ANTOINETTE MARTIN CHARLOTTE ACKEN WENDELL  
KAWAHARA KEVIN DAVIDSON EMILY HANIS DENISE KOKER CHARLES FROST VERNE IVINS FREDDY WHITWORTH JIM MITCHELL JOHN WHEELER JOHN SEUSER ALEC  
WILLIS BRUCE DALE SHELIA DAIGLE ROGER EVERETT KAREN GREULICH ROBERT MENA CHRISTINE LEONARD ROBERT ARMSTRONG CHRIS EDWARDS EVELYN BACA GARY  
BAILEY CHARLES SCHMITZ MAC SPIVEY LORENNA PETERSEN JANET BROOKS THOMAS HARRISON PEGGY HATCHER GREG SOO LORENZO ASIA DONNA MITCHELL  
LORRAINE ELDRIDGE DON CLARIN SHARON FRAZIER CHARLES OIEN CHARLES NEVEU JIM BARTEL JOHN MARION LUPE ALAMEDA STEVEN EHLE GENE SIMPSON FRANK  
DUGGIN GLENN SMITH ROY PEARSON ELLEN OCHOA WINALEE BEESON TERRY GARNER CRAIG DESHIELDS TIM TOOMAN JOHN SCOLA DON WERNER STEVEN RING JIM  
BAUMAN ROBERT JACKSON DON BOHRER CRAIG BONEY RICHARD FEIL ALAN BILEY TERRI CZAPINSKI ROBERT WHITESIDE ARLYN ANTOLAK LINDA LUCCHETTI DON  
NISSN COLIN HACKETT PHILIP ZABLOCKI JERRY WACKERLY DANIEL DOMINGUEZ SAMUEL JOHNSON JOHN HACHMAN TERESA PIRES DOYLE BAKER MICHAEL OCONNOR  
RAY SHAUM SHIRLEY DALRYMPLE KEITH KUHLENGEL ARLYN BLACKWELL MICKEY BANFIELD DON RICHARDSON GLENN DIETEL STEVE MARSHALL JACKIE FOSTER BOB ST  
HILAIRE MIKE DYER JON PALLITTO THERESA SMITH SHERRY CRUZ KATHLEEN DANNIS TABO HISAOKA JOE FARMER OWEN THOMAS ROBERT CHAN GORDON HAMMAN  
DICK ROHDE ERNIE ALFORD RON LUDOLPH DONALD SWEENEY BILL HOBSON ARTHUR PONTAU JOE ARELLANO JOHN KRAABEL DANIEL FERKO MONTE NICHOLS MOE  
HOUK VIC HAM MARY STODDARD ROGER BUSBEE RICK WAYNE THERESE PORTER KENNETH PERANO AL MEDERIOS TED SIMMONS RANDALL VAN CLEAVE JACK  
SWEARENGEN EDWARD DUTRA JAMES ROGERS JAKE MCMICHAEL MARCUS LIBKIND SYLVESTER GRISBY CLEMENT CHIANG GLENDA MUIR PAUL DOMINGUEZ LESLIE  
JONES MARLIN POUND KENNETH LEE DAVE OTTESEN RICHARD FOVELL DAWN TOCKEY CHARLIE DECARLI PAMELA BARR TIMOTHY EKLUND DEL HOUSER KEN BLACK  
JACK BOLEN DUNCAN TANNER MARGE YORK JEFF MANCHESTER JEAN KAMP DON KNAPLE GEORGE HIROTA TERRY HIGUERA VERLAN GABRIELSON JOHN OCONNOR BOB  
KEE CHARLES GROSS WAHID HERMINA DONALD GALLAGHER LLOYD ROTHACKER ANTONY CHAVEZ WILLIAM JAMES PAT SULLIVAN JOHN RHODENBAUGH (EMPLOYEES AT  
SANDIA LIVERMORE AS OF JANUARY 1986)





SANDIA'S COMBUSTION Research Facility was formally dedicated five years ago (March 6, 1981), just one day before SNLL's 25th anniversary Family Day open house. Taking part in the ribbon-cutting ceremonies were (from left) DOE Office of Basic Energy Sciences Associate Director Jim Kane (with blow torch), former Sandia President Morgan Sparks, VP Tom Cook (20), 8300 Director Dan Hartley, DOE Division of Energy Conversion & Utilization Technology Director Karl Bastress, DOE Division of Chemical Sciences Director Elliott Pierce, and 8200 Director Arlyn Blackwell. The national combustion center, first proposed in 1975, has served hundreds of visiting scientists and staff researchers since its opening.



IN FEBRUARY 1983 a second Cray supercomputer arrived at Sandia Livermore, thus greatly increasing the capacity of the Cray system. The original Cray 1-S, which arrived in 1980, provided 500,000 words of memory, but with the upgrading and addition of a second unit the capacity has been increased to 4 million words today. Shown at the unloading of the second unit outside Bldg. 912 were (from left) Cray Research executive Charles Breckinridge, Bob Huddleston (former Sandian), Gary Drummond (8301), and John Barnhouse (8261).

## Sandia Livermore Milestones '81-'86



APRIL 10, 1985, saw Sandia break ground for the long-awaited Weapons Engineering Laboratory, a 77,000-square-foot, three-story building due for occupancy by the fall of 1987. Former DOE Assistant Secretary for Defense Programs Major Gen. William Hoover addressed Sandians gathered for the ceremony just south of Bldg. 911. Seated on the platform were (from left) Dick Claassen (8000), LLNL Director Roger Batzel, DOE San Francisco Operations Office Manager Dick DuVal, Livermore Mayor Dale Turner, Livermore Chamber of Commerce President Sue Dell'Acqua, and Garland Bryan of Flatow, Moore & Bryan architectural firm.



B83 MODERN Strategic Bomb was put in the U.S. weapons stockpile in September 1983 after five years of research and development. In this May 1981 photo, Sandians displayed some of the work completed at Livermore on the weapon. From left are Mike Neuman (8131), Rex Eastin (8176), Rodger Page (8164), and Jim Dremalas (8442).



AMERICA'S FIRST commercial solar power plant, Solar One, was dedicated Nov. 1, 1982, culminating more than five years of technical work by Sandia staffers and others in DOE and the Southern California Edison Co. Sandians attending the Daggett (near Barstow) ceremonies were (from left in front): Jim Smith (8254), Scott Faas (8471), Duncan Tanner (8471), Jim Bartel (8441), Christine Yang (8231), Tom Brumleve (retired), and Al Baker (8471). In back from left are Chuck Pignolet (8431), Rick Wayne (8400), Cheryl Jensen (former Sandian), Bill Morehouse (retired), Al Skinrood (8471), Dick Claassen (8000), Pat Smith (8265), Jim Wright (8150), and John Sharp (2811).



CHANGE OF THE GUARD took place at Livermore in June 1982 when Dick Claassen (8000; right) came from Albuquerque to become vice-president of Organization 8000 and Tom Cook (20) moved back to Albuquerque as an executive vice-president after 16 years at the helm in Livermore.



## TLC + Caf = "The Right Stuff"

Nearly 90 percent of Americans think they weigh too much, reports *Time* magazine. Not only do they believe that "thin is beautiful," they also are aware that carrying around too much weight creates extra health risks (like heart-related problems) and results in a shortened life span.

Some of us, however, assume that the quantity of food we consume directly relates to how much weight we gain or lose.

Not necessarily so, says Susan Harris (3330), registered dietitian and program manager of Medical's Total Life Concept (TLC) wellness program. Calories are

**"To be short, and sparing, at meals, that I may be the fitter for business." [From *Things Necessary to be Continually Had in Remembrance*]**

— Sir Matthew Hale  
(1609-1676)

calories, but they are more densely packed in some foods than others. For example, a pound of broccoli contains far fewer calories than a pound of sausage.

"Nutrition is an important component of a healthy life style," Susan says, "and it's the *kind* of food we eat—the choices we make—that's really most important."

So we have to exist exclusively on raw celery and carrot sticks? No (at least not at lunch), thanks to a cooperative effort Susan began a few months ago with Dave Dumais, manager of ARA Food Services at the Area I cafeteria (Bldg. 861).

If you've been at the cafeteria lately, you've probably noticed the TLC Bar, an inviting island in a sea of "full-menu" temptations. If you're looking for fewer calories, less fat, and not so much sugar and sodium, the TLC Bar is an excellent place to start. Here you can put together a "build-it-yourself" salad (large or small) for a

**"The difficulty in life is the choice."**

— George Moore  
(1852-1933)

moderate price. Besides the salad makings, it also offers fresh fruit (two choices), jello, low-calorie cottage cheese, and an assortment of low-calorie dressings (used exclusively now by the cafeteria).

Aside from main menu items, other food selections are available too. In the deli area, you can choose from several kinds of soup ("but go light on the cream-based ones!" says Susan) and a variety of sandwich and salad makings. Do-it-yourself

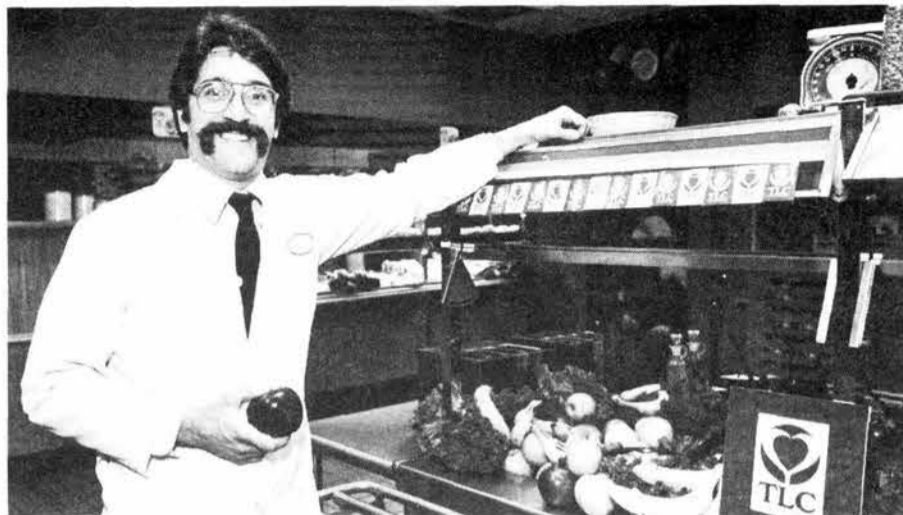
**"Tell me what you eat, and I will tell you what you are."**

— Anthelme Brillat-Savarin  
(1755-1826)

sandwiches and salads can be as large or small as you like (they're priced by the ounce).

Low-calorie desserts (e.g., a three-ounce cup of frozen yogurt at 115 calories) and a variety of beverages (fruit juices, iced tea, and coffee) are also available in the deli area.

"Dave and I decided that people, for a



DAVE DUMAIS, ARA Food Services Manager at the Area I cafeteria, displays a wide variety of fresh fruit and salad makings at the TLC Bar. Note the TLC logos, used to steer you to "the right stuff."

variety of reasons, often don't have the time at lunch to stand around and ponder menu selections [with the idea of picking nutritionally sound items]," says Susan. "So

**"We must eat to live and live to eat."**

— Henry Fielding  
(1707-1754)

we're making an all-out effort to steer them to the right choices by using the TLC logo to mark good food choices.

"Also we're marking TLC-approved main menu selections [usually published in the *Weekly Bulletin*] with a double asterisk so that Sandians can look at next week's menus to determine the best nutritional choices."

Susan also is working with Dave to come up with some good-for-the-diet breakfast selections. (Cafeteria breakfast hours are

6:45-7:45 a.m.) Early morning menu items—the TLC-approved ones—include several kinds of bran cereal, fresh fruit and juice, a melon/ham or melon/cottage cheese combo, and whole wheat toast.

If you've read all the information above on food choices, but you're still confused

**"Between two kinds of food, both equally Remote and tempting, first a man might die**

**Of Hunger, ere he one could freely choose."**

— Dante Allighieri  
(1265-1321)

about the factors governing a "good" or "bad" diet, ask Susan for a copy of "Dietary Guidelines for Americans"; send her a written request through company mail.

## In Form & Informed

*Q: I am taking Inderal for a heart problem. What heart rate should I aim for when I exercise?*

*A:* You are correct in noting that Beta-blockers like Inderal and others will lower the exercise heart rate. As a general rule, the heart rate will be approximately 15 to 20 percent lower at any given work load because of the action of B-blockers. To calculate your exercise rate, use the equation given below to figure the exercise rate for your age, then reduce the numbers by 15 percent.

B-blockers are most commonly used for control of hypertension, not overt heart disease. Anyone taking a B-blocker for heart trouble should probably go through a cardiac rehabilitation program.

Your heart rate during exercise should be in a range called the target heart rate (THR) to ensure that you are getting the benefits of the exercise. Each person will have a different THR, depending on age, fitness level, and, in your case, medication. When you calculate THR, you will have two numbers: The lower number is the minimum heart rate at which you should exercise to get the cardiovascular benefits of exercise; the higher number is the maximum rate (above this higher heart rate, you run the risk of overworking and sustain-

ing an overuse injury).

Calculate your THR by:

1. Taking your resting heart rate (Rest HR) for one minute upon waking in the morning and sitting up in bed.
2. Subtracting your age from 220 to get your maximum heart rate (MHR).
3. Using this equation to figure your high and low target heart rates:  
THR = 60 to 80% x (MHR - Rest HR) + Rest HR.
4. Dividing both THR numbers by 6 to get THRs for 10 seconds.

For example, a 40-year-old with a resting HR of 70 would have a low THR of 136 and a high THR of 158 for one minute (23 to 26 for 10 seconds), calculated as follows:

$$0.6 (180-70) + 70 = 136, \text{ and}$$

$$0.8 (180-70) + 70 = 158.$$

Remember, these calculations are for an average person not on medication. Because you are on B-blockers, your THR will be fifteen percent lower than calculated by these equations. Before beginning any exercise program, check with your physician to get his or her opinion of your program. Any person with cardiovascular disease should work closely with a physician to ensure that the exercise program is right for that person.

Laurel Traeger Mackinnon  
Exercise Physiologist



## Take Note

Any Albuquerque Sandians who will be in the Livermore area on March 8 are invited to attend SNLL's Family Day. Please contact John Barnhouse (8261) at 532-3276 a few days before your arrival.

\*\*\*

Contrary to widespread rumor, a \$24/year MWR card is not needed to purchase bargains or other items at the Thrift Shop. It is true (currently) that the card is needed to consign items for sale.

\*\*\*

Attention, Retirees: If you have a furnished house or apartment available for rent to Sandia summer employees (college instructors and graduate students), please call Personnel at 844-0970 or 844-8458 before March 7.

\*\*\*

Dixy Lee Ray, former head of the Atomic Energy Commission and former governor of Washington, will make an informal presentation to the public on March 6 at the KAFB-East Officers Club. Sponsored by AREA (Americans for Rational Energy Alternatives), the event includes a no-host bar at 6:15 p.m., dinner at 7, and conversation with Ray following the dinner. Cost is \$10; reserve by 5 p.m. March 3 at 242-0320.

\*\*\*

Theme of the 1987 RAMS (Reliability and Maintainability Symposium) is "Assurance Technologies in the Automated Engineering Environment." Those interested in submitting papers for the symposium, which is set for Jan. 27-29 in Philadelphia, may pick up a "call for papers" info sheet in the LAB NEWS office. Deadline for summaries of papers is April 15.

\*\*\*

*Keeper of the Supreme Decree*, an original play on the life of Martin Luther King, Jr., will return to the KiMo Theatre on March 1 at 7:30 p.m. Local playwright Etha Gray wrote, produced, directs, and acts the Coretta Scott King role in the drama. Retired Sandian Jim Robinson plays the title role. And Thomas Henderson (2853) and Vernon Koonce (5173) are members of the cast. Call the KiMo office for more info.

\*\*\*

Veteran actress Dolores Gravning (4051) has a major role in *My Sister in This House*, which plays through March 9 at The Vortex. She calls it "an extremely difficult show," but one that "seems to be developing a cult audience of theatre aficionados." Reservations on 247-8600.

\*\*\*

If you're new to the city and panic-stricken at the thought of being an alien forever, take heart. There are some helpful souls around — and even a baby sitting pool available, on an exchange basis, on evenings and weekends. All wives of Sandia employees, female employees, and wives of associated contractors and consulting firms are welcome to join "The Sandians." The group has wide-ranging interests: crafts, gourmet cooking, dining out, reading, and organizing games for pre-schoolers. The



SOME NEW FACES have joined the seasoned ones on the LAB NEWS staff. From the top: assistant photographer Gerse Martinez is a 13-year veteran (in three stints) on the paper in his 28 years at the Labs. Writer Irene Dubicka has been on the staff four weeks today; she has an MS in journalism (with an emphasis on science writing) from Columbia. Photographer Randy Montoya has seven weeks of LAB NEWS experience, daily newspaper experience, and a journalism degree from UNM. Writer Phyllis Wilson has more than 25 years of Sandia experience, most of it in Public Information 3161; she transferred to 3162 last October. At the bottom of the heap is Editor Bruce Hawkinson; in his 20 years at Sandia, he served as a LAB NEWS writer for five years in Albuquerque and two in Livermore in the 70s and became editor in 1982.

next get-together is on Monday, March 3. More info from Linda Manke: 293-6064.

\*\*\*

Looking for another income tax deduction — for next year, at least? Goodwill Industries has a brochure, "Valuation Guide for Donated Goods," that lists IRS guidelines and ways to determine fair market value and discusses the records needed to claim charitable deductions. Pick up a copy in the LAB NEWS office. And when filling out this year's 1040, note that charitable contributions, such as to ECP, are deductible even for those who choose not to itemize, according to a letter from United Way.

\*\*\*

Retiring this month and not shown in LAB NEWS photos: Juan Perea, Donald Barack, Clarence Ray (all 3741), Elmer Cooper (7811), and Walter Rosenburg (2830).

\*\*\*

The eighth annual Ideas in Science and Electronics (ISE) Exposition and Symposium will be held at the Albuquerque Convention Center April 29-May 1. The latest in electronic equipment and computer-aided systems from 600 manufacturers will be displayed and discussed. ISE '86 also offers three days of high-tech seminars organized by the local chapter of IEEE. Advance registration gets you free admission to the

exhibits; otherwise, there's a \$5 admission charge at the door. (Attendees at ISE '84 or ISE '85 are automatically pre-registered for this year's exposition.) Advance registrants for the full seminar program pay \$15 (\$10 for IEEE or ISE members); at the door seminar program is \$25. For advance registration, write or phone the ISE office at 9004 Menaul NE, 294-6622.

\*\*\*

Somehow, the LAB NEWS let Sadie (formerly Hesselden) Knight slip out the door last June without mentioning her in the retiree listings. Sadie, 7540 department secretary when she retired, tells us in a recent note that since October she's been living in a new solar-heated house she built in Taos. The house has "fantastic views of the entire Taos Valley . . . and my heating bills are small, [thanks to] our sunny, mild winter." If you'd like to drop a note to Sadie, her address is P.O. Box 255, Taos 87571.

### Shoot for the Moon



... "Only 12 men have been to the moon, but the Lamar Savings Assn. [LSA] of Austin, Tex. (assets, \$1.4 billion) says it wants a branch there. The 24-year-old [LSA] filed its application for a full-service branch at any US lunar base with the Texas Savings & Loan Department and the Federal Home Loan Bank Board (FHLBB). 'We think the next billionaires will be made in space,' explains Laurie Paxson, the 36-year-old public relations vice president who dreamed up the project. She insists [LSA] is completely serious. Going on predictions of lunar colonization by 2010, [LSA] projects it will start construction in 10 to 15 years. Whether or not the moon is in FHLBB jurisdiction, a spokesman notes that it has received the application and that it is 'under construction.'" *Forbes*

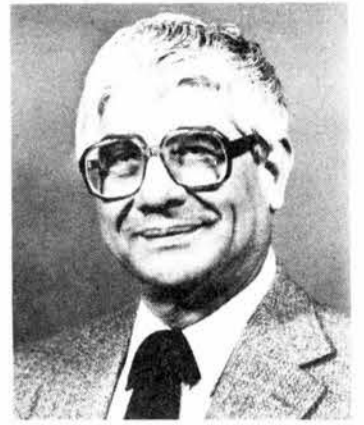


**MILEPOSTS**  
**LAB NEWS**  
FEBRUARY 1986



Mike Coleman (155)

35

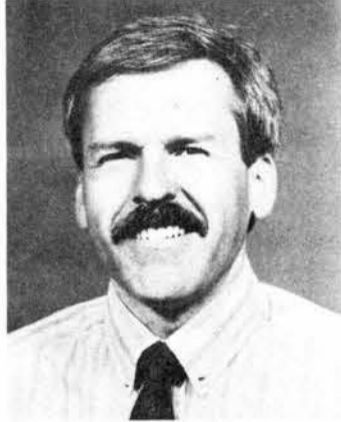


Ramon Lamberson(2601) 35

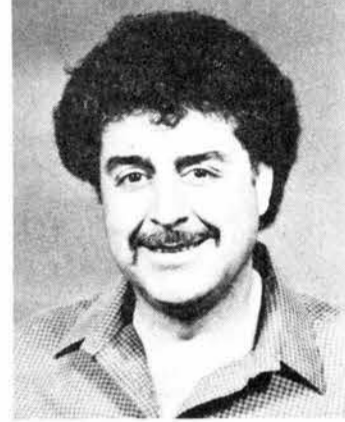


Laura Gartling (1200)

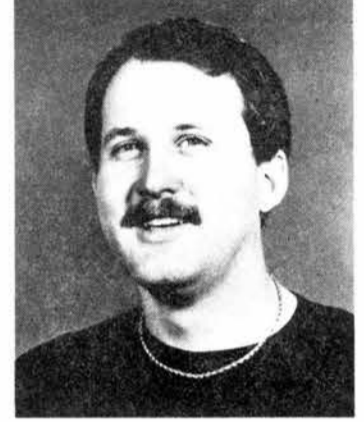
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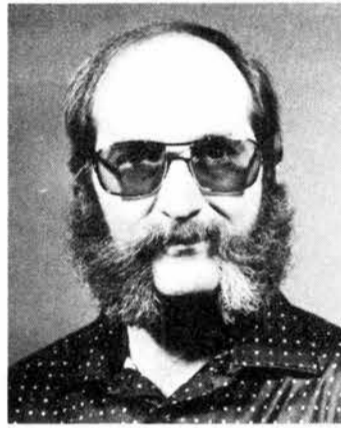
Michael DeWitte (7843) 10



Manny Vigil (2512) 20



Steven Davis (7473) 10



John Ashworth (5234) 20



Serafico Carrillo (4021)

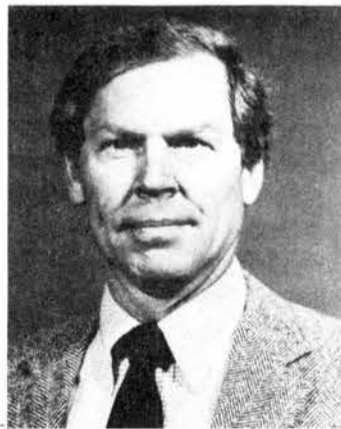
30



Ken Eckelmeyer (1822) 15



Al Gendreau (7485) 20



Ed Kjeldgaard (6321) 20



Prospero Sedillo (3428) 10



Jeanne Bando (7522) 10

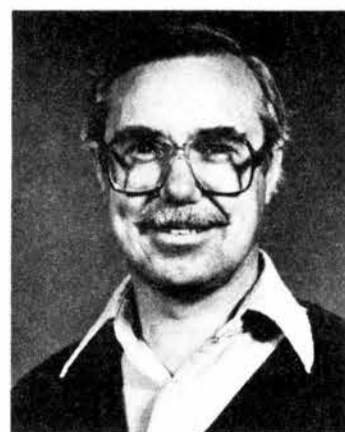


Herb Loemker (324)

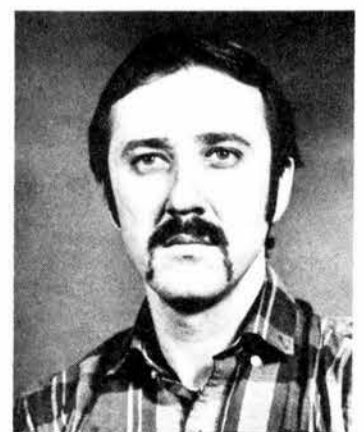
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Patricia Trelue (5255) 10

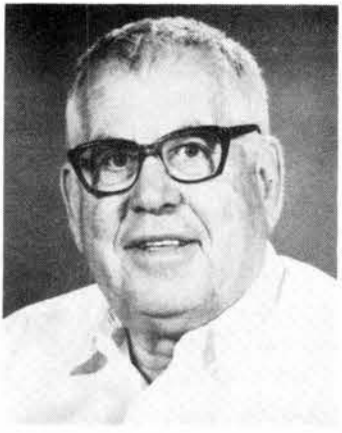


Gordon Scott (2561) 10

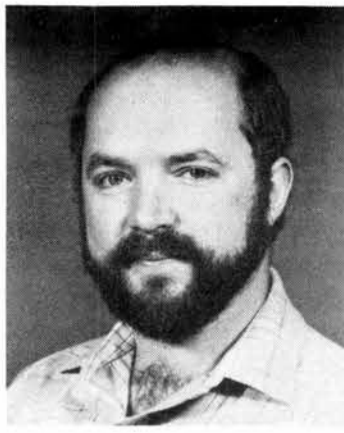


Stan Piekunko (5242) 10

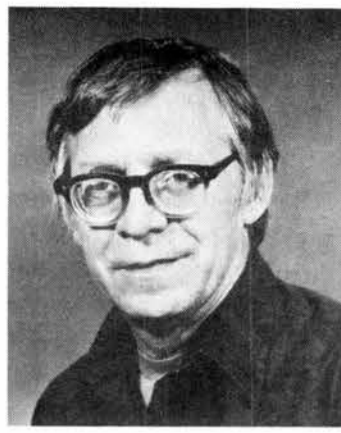




Ira Hamilton (6452) 40



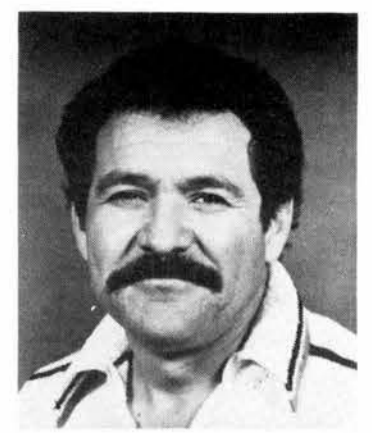
Robert Freeman (2343) 10



Billie Palmer (7473) 30



Muriel Iverson (7522) 30



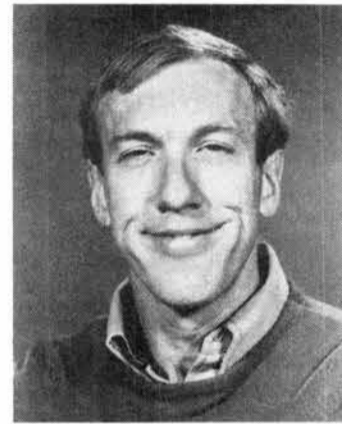
Roque Gallegos (1274) 20



Vicente Garcia (7818) 35



Jan Gaunce (3155) 10



Bill Ling (334) 10



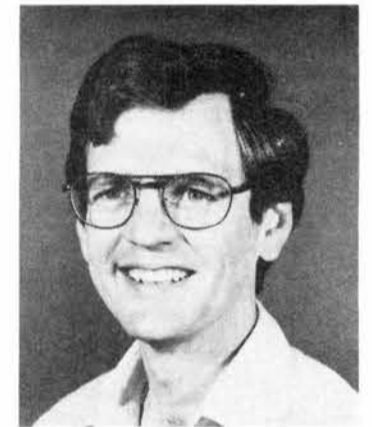
Sam McAlees (1633) 30



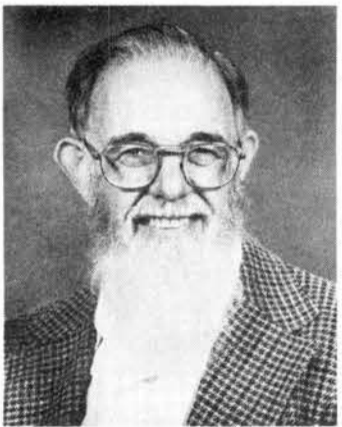
Dale Pipher (6423) 35



Fred Gustke (7521) 25



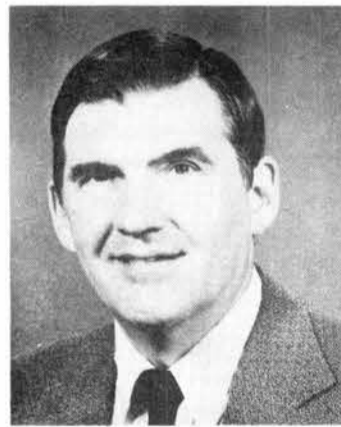
Larry Lukens (2541) 10



Paul Miller (3153) 25



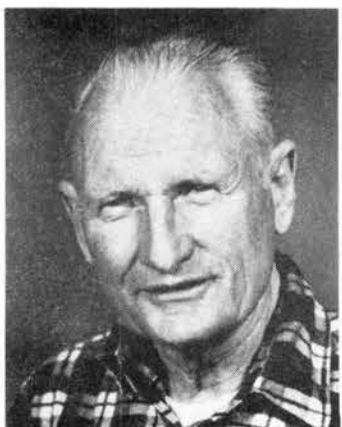
Bob Everett (2544) 10



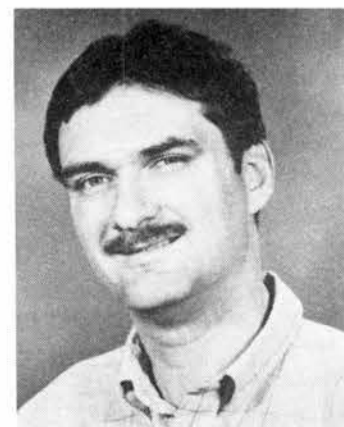
Bill Emrick (313) 25



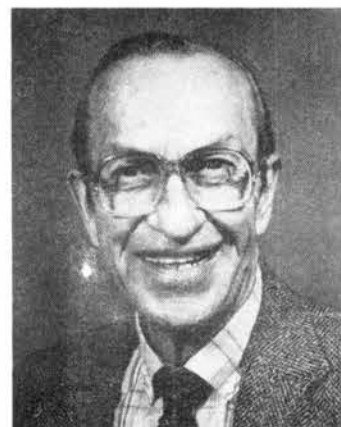
Dick Classen (8000) 35



Bill Foy (7556) 35



Jerry Esch (2626) 10



Ed Domme (2620) 35



**Putting** — The Sandia Golf Association will hold its annual meeting on March 5, from 4:45 to 7:00 p.m. in the main Coronado Club dining room. Anyone interested in meeting fellow golfers or playing in the SGA "Tour" is welcome to attend. The first event on the tournament schedule is the Cochiti Nature Walk (which cannot be as leisurely a pattering around as it sounds), slated for March 22. Contact Don Buller (1111) for more info.

\*\*\*

**Sailing** — For sailors and powerboaters who need a short course on saving elbow grease, the U.S. Coast Guard Auxiliary started weekly classes on boat handling and safety on Feb. 26. Twelve more classes will be held on Wednesdays, 7 p.m., at the Armed Forces Reserve Center, 400 Wyoming NE. A small fee for text and supplies will be charged. For more info, call Carl Boxx at 299-2855, or Bill Blankenfield at 864-3082.

\*\*\*

**Bowling** — Upcoming SANDOE tournaments are the Four-Game No Tap on March 15 and 16, and the Three-Game Scotch Doubles on April 12 and 13. Both events are lined up for Fiesta Lanes. Dora

## Fun & Games

Gunckel (6410), 4-4052, will be glad to roll out the welcome mat for you.

\*\*\*

**Pedaling** — Indomitable bikers have a chance to cycle through north central New Mexico to their heart's content on the First Annual Heart Cycle Bike Tour. The 6-day, 432-mile tour — all on paved roads — of mountains, valleys, canyons, mining camps, and pueblos starts off from Albuquerque on June 16. Red River, Bob Cat Pass, Rio Grande Gorge, Los Alamos, Madrid, and Golden are just some of the sites for sore thighs. Overnight stays are planned at Santa Fe, Taos, and Española. Gear up by training on 7 percent grades, and you may just wheel-and-deal yourself into the group, which will be limited to 10 or 20 fit riders. April 15 is the registration deadline. For details, call Walt Joseph (ret.) at 299-6989 before 7 p.m.

\*\*\*

**More Pedaling** — One way to get away from it all is to join the New Mexico Multiple Sclerosis Society in biking out to the Sangre de Cristo mountains on Saturday,

May 3. The group's sixth annual MS 150 Bike Tour culminates in Glorieta, with entertainment and an overnight stay planned at the Glorieta Baptist Center. Prizes will be awarded to top pledgers. It's mainly downhill from there, with a return to Albuquerque on Sunday. For Bacchanalians and the less ambitious bikers among us, there is a shorter 50-mile ride — called "Pig Out and Pedal" — to Coronado Monument planned for April 27, leaving the Museum of Albuquerque after lunch, with planned detours at local wineries. Those on the wagon can look forward to the point of return at the University of Albuquerque, where an all-you-can-eat feast will be provided. Registration is required in advance of both tours, so call 888-4948 and the forms will be mailed to you.

\*\*\*

**X-C Skiing** — Jane Elson, secretary of Divisions 2311 and 2312, took second place in the Women's 10 Class of the five-kilometer Chama Chile Classic. She finished the cross-country ski run in just 38 minutes and 26 seconds, outpacing 20 other women. Roadrunner Jane has skied only once this season before winning this race on Feb. 16. **Congratulations!**

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**Deadline: Friday noon before week of publication unless changed by holiday. Mail to: Div. 3162.**

### Ad Rules

1. Limit 20 words, including last name and home phone.
2. Include organization and full name with each ad submission.
3. Submit each ad in writing. No phone-ins.
4. Use 8 1/2 by 11-inch paper.
5. Use separate sheet for each ad category.
6. Type or print ads legibly; use only accepted abbreviations.
7. One ad per issue per category.
8. No more than two insertions of same ad.
9. No "For Rent" ads except for employees on temporary assignments.
10. No commercial ads.
11. For active and retired Sandians and DOE employees only.
12. Housing listed for sale is available for occupancy without regard to race, creed, color, or national origin.

### MISCELLANEOUS

- MIRRORED SLIDING DOORS, 60" wide, gold trim, \$75. Bronkema, 821-2119.
- ZENITH COLOR TV, 16", \$35; Nordica ski boots, size 10, \$25; Olin Mark III skis w/bindings, 185cm, \$40. Braithwaite, 822-1998.
- SEWING CENTER, 41" x 24" x 63", Formica cutting surface, 4 drawers, machine storage, \$125; computer table, 36" wide, \$50; Schwinn exercise bicycle, \$100. Johnson, 298-4553.
- DELUXE ROPER RANGE, self-cleaning oven w/microwave oven, used 4 months, \$800. Palmer, 296-2551.
- RECLINER, brown/gold Herculon, \$95. Stang, 256-7793.
- KAYPRO II, 64K memory, two 191K ss disk drives, software+, CPM system, \$800. Paul, 296-6500.
- FISH AQUARIUM, 20-gal., complete w/pump, hoses, lamps, and fish, \$30 OBO. Marchi, 299-3610 after 5.
- HIKING/CLIMBING BOOTS, Munari Norstar Belluno, Vibram soles, size 9LN, new \$40, sell for \$15. Schkade, 292-5126.
- QUEEN MATTRESS, box spring, frame, headboard, bleached solid maple, w/dresser, vanity bench, night stand, \$500. Duvall, 881-4406.

FREEZER, Sears Kenmore, 23 cu. ft. Bauer, 291-8736.

LADIES' SALOMON SX60 SKI BOOTS, size 7, \$65. Swain, 256-1467 or 265-0098 (message).

ELECTRIC GUITARS, '68 Les Paul Custom, \$450 firm; '70s Epiphone Archtop (Gibson ES330 copy), \$550 firm, cases included. Diaz, 292-1450.

WATER BEDS: full size w/6-drawer pedestal, \$250; super single w/3-drawer pedestal, \$200, both w/liner and heater. Rozelle, 298-0396.

REGISTERED DIAMONDS, .72 and .73 high color/clarity, fine grade stones, shown at Credit Union only. Underhill, 294-5774.

WHIRLPOOL GAS DRYER, super capacity LG7681XM, white, one year old, \$300 OBO. Tardy, 843-1109.

DELCO AM/FM STEREO RADIO from '83 Chevrolet w/2 speakers. Peters, 293-6356.

TABLE SAW, Craftsman 8", w/rip fence extension, \$125. Giddings, 281-3582.

BALDWIN FUNSTER ELECTRIC ORGAN, 4 years old, \$300; child's guitar, Aria, w/case, \$50. Gubbels, 884-3711.

BRAHMA CAMPER SHELL for 6-ft. bed, brand new. Leyba, 883-1140.

TAP SHOES for dancing or clogging, size 7-1/2N, paid \$20, used twice, \$15. Hines, 821-5932.

COMPUTER, Radio Shack Model III, 48K, two drives, COBOL, BASIC, VisiCalc, StockPak and Epson MX-Plus printer, \$600. Hollowwa, 255-6938.

CHINESE SHAR-PEI puppies. Ericksen, 898-6573.

CEILING TILE, white w/gold veins, 12" x 24" tiles w/12" square effect, 300 sq. ft., \$75. Anderson, 294-8451.

HAM RADIO, complete, Kenwood TS820, remote VFO, cw filter, keyer and paddle, \$500. Draper, 821-5455.

FOLDING BED and mattress, \$25; men's bicycle, 3-spd., \$35; metal bed frame, adjustable, \$9. Joseph, 299-6989.

MATURE PERSON will take care of house, plants and animals while you're away, excellent local references. Boes, 268-4481.

POWER LAWN MOWERS (2), both run, \$25 each. Stephenson, 299-3914.

SOFA, roll arm style, 3-cushion seats/back, rust floral weave poly, casters, contemporary, \$250. Sons, 294-3953.

AKC REGISTERED MINIATURE DACHSHUNDS, 3 males, 6 weeks old, \$175 each. Ashbaugh, 1-384-2671.

LEVOLOR 1" MINIBLINDS, 4 units, assorted sizes, colors, 38" x 37", 36" x 79", 35" x 79", 65" x 62", new, 1/2 price. Nelson, 881-0148.

ROTOTILLER, 5 hp, Sears, \$200. Byers, 298-8326.

WASHER & DRYER, Kenmore, heavy duty, 7 yrs. old, \$250 OBO; Cold-spot, 17-cu. ft. refrigerator/freezer, 12 yrs. old, reversible door, \$100. Mooney, 281-2612.

SPRINGER SPANIEL/POINTER PUPPIES, parents purebreds, available 3/1, shots, tails docked, \$25 each. Strachan, 291-0476 evenings and weekends.

LITTON MICROWAVE OVEN w/temperature probe, 1.4 cu. ft., mechanical timer needs work, \$50. Cilke, 296-3665.

.44 CAL. RUGER BLACK POWDER REVOLVER, Pachmayr grips, holster, powder and all accessories, \$175. Demos, 294-6492.

TOY POODLE, AKC registered, male 6 weeks old, apricot color, show quality, \$300. Murray, 292-9210.

POPCORN POPPER, hot air style, \$5. Robinson, 255-0114.

SERVICE MANUAL for '78 Plymouth Horizon/Dodge Omni, \$10; new bumper, fits '78-'82 models, \$95. Van Deusen, 299-4328.

COLT AGENT, 2" .38 Special, \$150; Mamiya twin lens cameras, C330, C33, C3, also telephoto and wide-angle lenses. Montoya, 266-2970.

'84 WURLITZER PIANO, \$1400. Montoya, 881-6898.

### TRANSPORTATION

WINDSURFER, Alpha, 12-ft., double concave PE hull, 190 liters, vario-boom/mast, retractable CB, footstraps, 5.5 sq. m. mylar full battensail. Ritchey, 268-7620.

'81 YAMAHA XS500, 3.5K miles, \$650. Braithwaite, 822-1998.

'82 DATSUN 310, sport model, 5-spd., hatchback, stereo/cassette, 35/50 mpg, 40K miles, \$3300 OBO. Trump, 298-9558.

'75 CHEV. Caprice Classic, AC, PS, PB, loaded, \$1750. White, 291-0382.

'72 DATSUN 510 stn. wgn., original owner, \$600. Baca, 888-4714 or 898-4256.

'75 TOYOTA Corolla stn. wgn., AC, stereo, new windshield and upholstery, radials, 79K miles, \$2350 OBO. McTigue, 256-1752.

'77 DODGE Monaco, AC, PS, PB, cruise control, 2-dr., \$1500 OBO.

Payne, 299-5966.

S10 BLAZER 4X4, V-6, loaded, 5-spd., AM/FM cassette, Rally package, new all-terrain tires, 17K miles, \$10,950. Gregory, 822-1368.

SAILBOAT, 22-ft. Catalina, w/trailer, outboard, head, galley, dinghy, lights, many extras, \$6500. Cochiti Marina slip available. Horton, 883-7504.

'70 WINNEBAGO RV, 21-ft., Dodge chassis, 318 V-8, roof and engine AC, generator, new radial tires, many extras, 70K miles, \$10,500. Peters, 293-6356.

'83 DATSUN 4X4, 36K miles, custom paint, \$5300. Little, 888-3728.

'81 FORD Country Squire Ltd. stn. wgn., full accessories, warranty, \$5000. Tolman, 296-8239.

'75 TOYOTA Corolla air conditioning, \$900. Syler, 293-5644 afternoons only.

'63 CORVAIR Monza convertible, new upholstery and paint, 47.5K original miles, \$4000. Baumgardner, 265-7024.

'79 MAZDA 626, 5-spd., AM/FM cassette, tinted windows, original owner, 61K miles, \$2500. Bohannon, 822-0060.

'76 OLDSMOBILE Cutlass Supreme, 2-dr., PS, PB, cruise control, \$1350. Shaw, 299-8524.

TWO EL CAMINOS: '79, AC, cruise, tach, PW/locks, split seat; '74, radials, cassette, dual exhaust. Freshour, 265-0617.

LONE STAR BOAT, 24' Cruisemaster II, camping/fishing, full canvas, sleeps four, head, stove, trailer, \$5000. Danclovic, 869-6086.

'84 BRONCO II, 4X4, XLT, V-6, 5-spd. w/OD, \$9975. White, 293-2219.

'79 FORD F250 Camper Special, 4WD, AC, PS, dual tanks, tinted glass, sunroof, camper shell, new radial tires, \$4000. Witt, 281-9455.

'82 FORD Escort, 4-dr., hatchback, 4-spd., AC, 29K miles, transferable 5-yr. warranty, \$3500. Reilly, 821-6195.

BICYCLE, Nishiki, 10-spd., touring seat and handlebars, \$100. Dunlap, 884-0232.

TRAILER, two-horse size with rear ramp and canvas top, single axle, new 4" floor, \$400. Ashbaugh, 1-384-2671.

'78 SUBARU Brat, AC, AM, custom storage box, good tires, just tuned up, \$1200. Casper, 268-4464.

'82 PONTIAC Grand Prix, loaded, less than 30K miles, white w/blue interior, \$6000. Christopher, 298-4826.

'81 PONTIAC Phoenix, tan, 2-dr. coupe, 4-cyl., AT, PS, PB, loaded,

52K miles, \$3500. Baca, 296-8474.

'76 CHEV. van semi-camper, sink, cooler, table/bed, sun roof, 350 V-8, AT, PS, PB, \$1500 OBO. Dodd, 296-1158.

'82 CHRYSLER LeBaron, 2600cc engine, low mileage, new tires, PW/lock, vinyl roof, 4-dr. Jaramillo, 255-8288.

'76 CHEV. Monza 2+2, 4-spd., rebuilt engine, \$1300; '77 Monte Carlo, 350 turbo engine, rebuilt, 2-dr., AT, \$1500. Montoya, 881-6898.

'83 DATSUN 200SX, 5-spd., many extras, 14K miles, original owner, \$7600. Morris, 293-7475.

21" TOURING BICYCLE, 12-spd., blue Nishiki International, \$165, complete \$265, includes fenders, racks, Kirtland-Kangaroo bags, much more. Blake, 881-1663.

### REAL ESTATE

MEADOW LAKE MH LOT, 68 x 170, on public water system, \$7000 refinance, adjacent lot available, seller pays one-half closing. Turnage, 265-3720.

### WANTED

NEEDED, good home for 10-month old male English sheepdog, please come to my rescue. Dyer, 877-7036 after 7.

USED TENT TRAILER to sleep 6, approx. \$1000. Preece, 293-2557.

SMALL DOG HOUSE for small price. Gregory, 291-8066.

5 ACRES ± in east mountain area, quality access is not a major concern. Bauer, 291-8736.

CHILD CARE for 2-1/2-year-old granddaughter, San Pedro/San Mateo/Menaul/Cutler area. Sparks, 884-7376.

KEESHOND PUPPY, female, AKC or mixed. Burns, 281-2027.

AIRSTREAM TRAVEL TRAILER, 28-30', rear double bed, center bath. Danclovic, 869-6086.

TOYOTA SPARE, TOYO 702, 185/70 SR14, new or near new, cash or my spare plus cash. Vogel, 821-1889.

APPLE MACINTOSH COMPUTER. Draper, 821-5455.

'80-'83 CHEV. Suburban or GMC 4WD, PS, PB, AC, tailgate, gasoline preferred. Hawkinson, 281-1281.

USED CAR, for Sandia High silent auction; paintings, antiques, sculptures, and services also needed. Miyoshi, 821-9118.

TO RENT: furnished 2 brm., apt. or home, June-December, professor on temporary assignment, couple only. Baumgarten, (515) 233-1088.



## Something New on Thursdays

THURSDAY NIGHT SPECIALS, much better than the Saturday variety, start in March at the Club. Here's a deal you can't afford to miss! Every Thursday, an all-you-can-eat buffet, featuring the likes of BBQ ribs and chicken (\$4.95 on March 6) or fried chicken and fish (\$3.95 on March 13), is served from 5-8. Plus 50 cent draft beer and margaritas. Plus children 12 and under eat at half the regular price, which isn't much to start with! All this and music too? Yep. It's Soundwave playing your favorite tunes from 6-10 all four Thursdays of the month.

EASTER'S IN MARCH this year, and rabbits are popping out of hats and the big screen at Family/Variety Night tomorrow night, March 1. Master magician Professor Flora unveils his bag of tricks while you're munching on goodies (pizza-by-the-slice and hot dogs) from the low-cost buffet, served from 5-6. Then that most famous bunny of all, Bugs, appears in "Bugs Bunny, Superstar," at 6. "Superstar" provides 90 laughs (one a minute) and features, along with Bugs, Rhapsody Rabbit and A Wild Hare. All Sandians and DOEans are invited to this first open house Variety Night. No charge for movie or magic show.

IT'S NOT EASTSIDE or Westside, but Southside (of Chicago?) making music at the Club tonight after you put away that two-for-one Friday dinner special. Your choice of filet mignon or fried shrimp — two dinners for \$14.95. Next Friday, plan to work off your two-for-one dinner with country-western brush-up lessons from 7:30-8:30. Then strut your stuff to the c-w

strains of the Isleta Poor Boys until 12:30.

'FESS UP, THUNDERBIRD card sharks! With two more table sessions in March — on the 3rd and 17th — you're getting ready to go nose to nose with those poor unsuspecting dolphin dealers in Vegas. Watch that get-together on the 17th, though; the luck o' the Irish can't hold for everybody. T-Birds are arriving in droves (and sometimes cars) for these card sessions, or so we're told . . . so get in on the action! It starts both days at 10:30 a.m. in the Eldorado room.

SKIERS LOVE THAT WHITE STUFF, and the Coronado Ski Club has a bunch of trips planned in March. This weekend it's Carnival 86, followed by Purgatory, March 7-9; Taos, March 15; and Big Sky, March 15-22. Spring's on the way, so get in on the fun while the gettin's good!

ENJOY THAT DAY OF REST this Sunday or March 16 by treating the family to one of those increasingly popular brunch/tea dances. A bargain (\$5.95) brunch buffet is served from 11-2, and there's dancing/listening music both Sundays from 1-3. It's the Rhythm Aires this Sunday, and Bob Weiler on the 16th.

OK, KELLY, O'REILLY, AND FLANAGAN — Dust off the shillelaghs and those funny little green pointed hats, and get on over to the Club on March 17 for the once-a-year Saint Paddy's Day bash! No Irishman worth his salt — or shamrocks — would miss this one. It's right after work in the lounge. Free munchies, 50-cent draft

beer, special drink prices, and green beer if you get there before it runs out. That son of old Erin, Bob Banks, plays from 6-8, and promises a sing-along after everybody has tossed down a couple!

THE ANNUAL HUNT IS ON for Easter eggs on March 29, and there's an egg roll scheduled too. It's from 10 a.m. to noon, and open to all members' children ages 8 and under. For those not busy hunting or rolling at the moment, cartoons are shown continuously in the ballroom. All kinds of special prizes for eggeceedingly good hunters in different age groups.

WE'RE GIVING YOU FAIR WARNING that space is limited for the most impressive Easter buffet of all — the one at the Club on March 30 from 10 a.m.-2 p.m. The menu features Virginia baked ham with cherry sauce, carved baron of beef, white fish, salads, fruits, corn O'Brien (not left over from Saint Patrick's Day!), green beans almondine, chateau potatoes, juices, eggs, sausage, hash browns, green chile, and all kinds of desserts. Prices are \$8.95 for adults, \$4.50 for children 12 and under, and free for children 2 and under. Make those reservations right now with the Club office, 265-6791.

CORONADO AQUATIC CLUB'S pre-season splash is set for March 12 at 7 p.m. in the C-Club dining room. It's sign-up time for children of Club members through age 18. Renew old friendships and meet new folks, including the new coach. You'll be able to place orders for team swim suits too. More info from Judy Williamson, 293-2572.

### Forget the Speed Reading



Advances in electronics have spawned an array of gadgets that make new pastimes possible for people in a hurry: speed listening and speed viewing. Armed with such clever machines as the \$99 Time Warp tape recorder (marketed by DAK Industries Inc. of Canoga Park, Calif.), speed listeners and speed viewers are managing some weirdly intriguing feats.

One man boasts of breezing through a three-hour tape of the best seller "Megatrends" in a 1 1/2 hour speed-listening session while driv-

ing through Nebraska. With a videocassette recorder souped up for speed viewing, an impatient viewer can dispense with "60 Minutes," commercials included, in 38 minutes.

Speed listening can also hurry along the sound of music. Stanley Takese, the president of VSC Corp., a San Francisco maker of speed-listening equipment, says it is now possible to hear Chopin's so-called Minute Waltz in 44 seconds, with minimal tone distortion. Why do this? "Time is money," Mr. Takese observes.

Patricia Bellew Gray, Wall Street Journal

## Christmas in February

The 7200 Directorate's annual Christmas project, "Shoes for Kids," received a surprise extension into February with a donation from Kinney Shoe Stores' corporate headquarters in New York. The project's goal — to purchase 100 pairs of shoes for needy children in the Albuquerque Public Schools — was surpassed, thanks to the generosity of many individuals and the support of the Kinney store in Coronado Center, reports chairman Don Rohr (7212).

And a follow-up from another holiday effort: David Trujillo (2857), honcho for 2800's annual Christmas food drive, tells us the drive raised \$1870 (also exceeding its goal), enough to provide 30 needy families with Bag and Save gift certificates for food and clothing. The project also collected new and used toys for delivery to kids in the families receiving assistance. "We had great fun delivering the toys," says David. "My thanks to all our contributors, organization reps, and delivery helpers on a job well done."



NEW AND OLD members of the 1985-86 Secretarial Committee. This group will plan the annual secretarial seminar and outreach programs in the public schools, promote the profession, and serve as liaison between secretaries and management. From left: Barbara Roberts (130), Gwen Germany (3540), Lynn Surma (2820/30), Lana Lachenmeyer (2520), Vicky Vivian (6310), Liz Leyba (5230/50), Renae Solether (6250), Dianne Reiff (5170), Amy Faucett (1220/50), Lorraine Luna (1620), and Mary Kolesar (7550). New members this year are Lynn, Vicky, Dianne, Amy, and Nancy Dytzel (7540, not shown).